



# PILOT STUDY WORK PLAN

West Coast Door Site  
Tacoma, Washington

January 13, 2025

Prepared for

3102 Tenants in Common  
3102/3120 South Pine Street  
Tacoma, Washington

## Pilot Study Work Plan West Coast Door Site Tacoma, Washington

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## TABLE OF CONTENTS

	Page
List of Abbreviations and Acronyms .....	v
1.0 Introduction .....	1-1
1.1 Site Description .....	1-1
1.2 Site Background.....	1-1
1.3 Natural Conditions.....	1-2
1.3.1 Physical Setting .....	1-2
1.3.2 Geology.....	1-2
1.3.3 Hydrogeology .....	1-3
1.3.4 Climate.....	1-3
2.0 Nature and Extent of Contamination.....	2-1
2.1 Previous Environmental Investigations .....	2-1
2.2 Summary of Results.....	2-5
2.3 Conceptual Site Model .....	2-6
2.3.1 Potential Sources of Contamination .....	2-6
2.3.2 Contaminant Transport Pathways.....	2-6
2.3.3 Potential Receptors and Exposure Pathways .....	2-7
3.0 Pilot Study Approach.....	3-1
3.1.1 Pilot Study Objectives.....	3-1
3.1.2 Technology Evaluation and Selection.....	3-1
3.1.3 Pilot Study Description .....	3-2
4.0 Pilot Study Implementation .....	4-1
4.1 Cultural Resource Review.....	4-1
4.2 Underground Injection Control Registration.....	4-1
4.3 Injection and Monitoring Well Installation .....	4-1
4.4 <i>In Situ</i> Geochemical Stabilization Reagent Injection .....	4-2
4.4.1 Pilot Study Volume and Dosing.....	4-2
4.4.2 <i>In Situ</i> Geochemical Stabilization Reagent Material Compatibility .....	4-2
4.4.3 Mixing and Injection Procedures .....	4-3
4.4.3.1 Procedures .....	4-3
4.4.3.2 Equipment.....	4-4
4.5 Performance Monitoring.....	4-5
4.5.1 Water Level Monitoring.....	4-5
4.5.2 Groundwater Sampling.....	4-5
4.6 Equipment Decontamination .....	4-5
4.7 Residual Waste Management .....	4-5
5.0 Data Evaluation and Reporting .....	5-1
6.0 Use of This Work Plan .....	6-1
7.0 References .....	7-1



## FIGURES

Figure	Title
1	Vicinity Map
2	Summary of Site Environmental Data
3	Pilot Study Injection Well Layout

## TABLES

<u>Table</u>	<u>Title</u>
1	Site Monitoring Well Completions
2	Pilot Study Performance Monitoring

## APPENDICES

<u>Appendix</u>	<u>Title</u>
A	Soil Boring and Monitoring Well Logs
B	Selected Remedial Investigation Figures
C	Selected Remedial Investigation Tables

## LIST OF ABBREVIATIONS AND ACRONYMS

AO .....	Agreed Order
AST .....	aboveground storage tank
bgs.....	below ground surface
BTEX .....	benzene, toluene, ethylbenzene, xylenes
CFM .....	cubic feet per minute
cPAH.....	carcinogenic PAH
CSL.....	Contaminated Sites List
CSM .....	conceptual site model
CUL .....	cleanup level
DNAPL .....	dense nonaqueous phase liquid
DO .....	dissolved oxygen
Ecology .....	Washington State Department of Ecology
EISB .....	enhanced <i>in situ</i> bioremediation
EPA .....	US Environmental Protection Agency
FS.....	feasibility study
ft.....	foot/feet
gpm .....	gallons per minute
HASP.....	Health and Safety Plan
IDW .....	investigation-derived waste
IET .....	Innovative Environmental Technologies, Inc.
ISCO.....	<i>in situ</i> chemical oxidation
ISGS .....	<i>in situ</i> geochemical stabilization
Landau.....	Landau Associates, Inc.
µg/m <sup>3</sup> .....	micrograms per cubic meter
µg/L .....	micrograms per liter
mg/kg .....	milligrams per kilogram
MTCA.....	Model Toxics Control Act
MW .....	monitoring well
NAD83/91 .....	North American Datum of 1983/1991
NAPL.....	non-aqueous phase liquid
NAVD88.....	North American Vertical Datum of 1988
PAH.....	polycyclic aromatic hydrocarbon
PGG .....	Pacific Groundwater Group
PPE .....	personal protective equipment
psi.....	pounds per square inch
psig.....	pounds per square inch gauge
PVC.....	polyvinyl chloride
RCRA.....	Resource Conservation and Recovery Act

## LIST OF ABBREVIATIONS AND ACRONYMS (continued)

RI .....	remedial investigation
ROI.....	radius of influence
ROW .....	right-of-way
SF.....	square feet
SIM .....	selected ion monitoring
Site .....	West Coast Door Site
SVOC.....	semivolatile organic compound
TCE .....	trichloroethene
TEQ.....	toxic equivalent
TIC .....	Tenants in Common
TPH .....	total petroleum hydrocarbon
UIC.....	underground injection control
UST .....	underground storage tank
VOC .....	volatile organic compound
WAC .....	Washington Administrative Code
work plan .....	pilot study work plan

## 1.0 INTRODUCTION

Landau Associates, Inc. (Landau) has prepared this pilot study work plan (work plan) to assist the West Coast Door Site (Site) former owners (collectively referred to as 3102 Tenants in Common [TIC]) with the remediation of the Site located at 3133 South Cedar Street in Tacoma, Washington. The work plan has been prepared in accordance with an Agreed Order (AO; No. DE 14016, April 11, 2017) with the Washington State Department of Ecology (Ecology) that requires 3102 TIC to address contamination resulting from historical creosote-treated wood pipe manufacturing operations. The Site is included on Ecology's Contaminated Sites List (CSL) under Facility Site ID 6308485 and Cleanup Site ID 2599.

### 1.1 Site Description

The Site property consists of two irregularly shaped parcels (Pierce County parcel numbers 0320073069 and 0320073070) covering 10.43 acres of land in the City of Tacoma, Pierce County, Washington (Figure 1). It is bounded to the north by South Center Street, to the west by South Cedar Street, to the south by Sound Transit-owned railroad tracks, and to the east by South Pine Street (Figure 2). The property is zoned for industrial use, and its western portion is occupied by adjoining north and south warehouse buildings constructed in the mid-1980s that cover approximately 89,000 and 108,000 square feet (SF), respectively. The eastern portion consists of loading docks adjacent to the warehouse buildings and a paved parking lot. The warehouse buildings on the western portion of the Site are leased to Goodwill Industries, which uses the north warehouse for shipping, receiving, and sorting operations. A section of the south warehouse is used as a retail outlet that is open to the public.

Approximately 95 percent of the surface area of the property is capped with impermeable surfaces, including pavement and structures. The remaining 5 percent of uncapped surfaces consists of grass areas to the west of the parking area on the southern end of the southern warehouse buildings. The rights-of-way (ROWs) surrounding the property to the north, west, and east are also paved; however, the Sound Transit-owned ROW to the south of the Site is partially unpaved and surfaced with compacted crushed gravel. Surrounding property uses are primarily warehousing or industrial operations.

### 1.2 Site Background

The Site was originally developed by Buffelen Pipe and Creosote Company and American Wood Pipe Company, which operated from the early 1900s to the mid-1930s. Manufacturing operations included log storage, drying kilns, and a creosoting plant that included two pressurized retort vessels used to impregnate pipe with creosote and was located in the southwestern portion of the current south warehouse footprint. The creosote oil consisted of a distillate of coal-gas tar or coke-oven tar and was stored outside in creosote oil tanks that had a combined capacity of 50,000 gallons.

Monarch Door and Manufacturing Company began door manufacturing at the Site in the mid-1930s. West Coast Door, Inc. purchased the subject property in 1954. West Coast Door manufacturing operations included cutting, sanding, and gluing of wood-veneered fiberboard core doors. These operations continued in both the north and south portions of the current warehouse after they were

constructed in the mid-1980s. William B. Swensen (also operating as William B. Swensen Enterprises) purchased the property in the 1970s and operated it as West Coast Door until 1997. Door manufacturing operations ceased in 1997, at which point the facilities were converted for warehouse and office space use. Tenants in the southern warehouse included Total Recall Information Management, Thrifty Supply, Nalley Fine Foods, and Goodwill Industries. Ownership of the Site was passed to the heirs of William B. Swensen, operating as 3102 TIC, after Mr. Swensen's death in 2006. CenterPoint Properties Trust subsequently purchased the property in 2017 and is the current owner.

In addition to the current warehouse structure, five additional smaller buildings were constructed between 1961 and 1970 on the central and eastern portion of the subject property and were demolished after 2006. These structures included a warehouse/showroom, office buildings, a maintenance shop, and a shipping/wood storage building.

Excavation and grading activities undertaken in 1986 as part of construction of the south warehouse revealed the presence of creosote-like material in subsurface soils. Approximately 10,500 pounds of material containing greater than 1 percent polycyclic aromatic hydrocarbons (PAHs) and designated as Washington State extremely hazardous waste were excavated and disposed offsite under a Resource Conservation and Recovery Act (RCRA) dangerous waste permit. The north warehouse, completed in 1985, and south warehouse, completed in 1987, are both occupied by Goodwill Industries.

Three storage tanks containing gasoline have previously existed on the Site, including two underground storage tanks (USTs) of 3,000- and 2,500-gallon capacity, which were removed from the Site in 1989. Confirmation soil samples from this tank removal were submitted to the Tacoma-Pierce County Health department, which certified the tank removal as complete based on confirmation results less than required cleanup levels (CULs). A third tank, an aboveground storage tank (AST) installed in 1990, was removed from the Site in 2005, and soil sampling conducted in the vicinity confirmed that gasoline was not released to soil.

## 1.3 Natural Conditions

Natural conditions at the Site, including the physical setting, geology, and hydrogeology, are discussed in the subsections below.

### 1.3.1 Physical Setting

The Site is situated in the South Tacoma Channel of the Nalley Valley in Tacoma. The Site is generally flat, with an elevation of approximately 250 feet (ft) NAVD88.<sup>1</sup>

### 1.3.2 Geology

The Site lies in the South Tacoma Channel, which is filled by Vashon-era fluvial deposits that were deposited in a high-energy glaciofluvial environment and are composed primarily of sand and gravel. The Vashon-era deposits were created as a result of the South Tacoma channel acting as a spillway for proglacial lakes that formed during the recession of the Vashon ice sheet in the late Pleistocene. The

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<sup>1</sup> North American Vertical Datum of 1988.

valley is one of the major channels that connected glacial Lake Puyallup through progressively lower spillways into Lake Russell, the main proglacial lake in front of the receding Vashon Ice sheet (Troost and Sofield 2011; Walters and Kimmel 1968).

The Site is relatively flat and underlain by very dense, poorly graded, medium sand and gravel with interbeds of silt to depths of at least 70 ft below ground surface (bgs). These native deposits have been covered by a layer of fill consisting of gravel to silty sands ranging from 1 to 12 ft thick. A low-permeability silt layer has been observed from approximately 44.5 to 47 ft bgs (equivalent to approximate elevations of 200 to 203 ft) in borings advanced in the southwest portion of the Site and is assumed to be a discontinuous low permeability layer within the Vashon outwash. A second low permeability silt layer was also observed from 68 to 70 ft bgs in this area.

### 1.3.3 Hydrogeology

Groundwater first occurs at depths of approximately 20 ft bgs in an unconfined aquifer in the sandy fluvial deposits. A second regional aquifer lying within older, pre-Vashon deposits underlie the Site and is separated from the shallower glacial outwash aquifer by a semi-confining silt to clay layer observed during investigations at other sites in the vicinity at approximately 100 to 130 ft bgs (URS 2005, Kennedy Jenks 1993).

The Sitewide potentiometric surface and groundwater flow direction have been measured during multiple previous monitoring events. Overall horizontal gradients in the shallow water-bearing zone are relatively flat, with overall variation of less than 1 ft across the Site. Horizontal flow directions are variable, but the overall flow direction appears to be to the west-northwest and influenced by seasonal infiltration of stormwater in the unpaved Sound Transit ROW to the southeast of the property.

Vertical gradients are consistently downward between the uppermost saturated zone and lower saturated zone within the Vashon outwash. Hydrologic studies concerning City of Tacoma Well 12A have found strong downward vertical gradients from the outwash sands to underlying deeper and older glacial deposits, which may influence groundwater flow more strongly than horizontal gradients. The Site lies outside the theoretical capture zone of Well 12A, and only limited pumping effects are observed during periods of groundwater withdrawal at Well 12A (Landau 2024).

Surrounding surface water bodies include Snake Lake approximately 0.7 miles to the southwest and the Thea Foss Waterway arm of Commencement Bay approximately 2.1 miles to the east.

### 1.3.4 Climate

The climate in the Tacoma area is tempered by winds from the Pacific Ocean, with average daily summer and winter temperatures of approximately 65 degrees and 45 degrees Fahrenheit, respectively. Snow and freezing temperatures are uncommon. Summer rainfall is generally infrequent and light. During the rest of the year, rains are frequent, especially late in fall and winter. The average annual precipitation in the area is approximately 39.8 inches.

## 2.0 NATURE AND EXTENT OF CONTAMINATION

### 2.1 Previous Environmental Investigations

Numerous environmental investigations have been undertaken at and adjacent to the Site by various consultants to assess the subsurface impacts from former creosoting operations. Impacts due to former creosote operations were first observed during excavation and grading for the construction of the south warehouse in 1986, when creosote-like material was encountered in surface soil in the vicinity of the former retorts. The following discussion briefly summarizes the investigations. Additional detail is provided in the Draft RI Report (Landau 2024).

- 1) **1992 Phase 2 Environmental Site Assessment.** The investigation involved drilling five soil borings (B-01 through B-05) inside the warehouse building and immediately to the east outside of the warehouse and installing three monitoring wells (MW-01, MW-02, and MW-03) near the southeast, northeast, and northwest corners of the warehouse. Soil samples were analyzed for volatile organic compounds (VOCs), gasoline and diesel petroleum hydrocarbons, PAHs, and phenols. Monitoring well groundwater samples were analyzed for VOCs and metals. One groundwater sample collected from MW-02 in the vicinity of the City Materials Testing Lab exceeded the Model Toxics Control Act (MTCA) Method A CUL for trichloroethene (TCE), and all groundwater samples exceeded the MTCA Method A CULs for total chromium and lead. All other soil and groundwater analyte concentrations were less than screening levels.
- 2) **2006 Limited Phase 2 Soil and Groundwater Investigations.** The investigation included drilling four soil borings in the former creosoting retort area (SP-01 through SP-04), installing a monitoring well (MW-04) south of the warehouse in the inferred downgradient direction from the former creosoting retorts, and sampling groundwater in MW-01 and MW-04. During soil boring and monitoring well installation, a strong creosote-like odor was noticed in a soil layer with wood fragments encountered between 3 and 6 ft bgs that was interpreted to be the disturbed historical ground surface. Soil and groundwater samples were analyzed for PAHs, including carcinogenic PAHs (cPAHs). All soil samples had cPAH toxic equivalent (expressed as the benzo(a)pyrene toxic equivalent [TEQ]) and naphthalene concentrations exceeding the MTCA Method A CULs. However, total PAHs were less than the MTCA Method A CUL in groundwater samples, and cPAHs were not detected in groundwater.

Five additional soil borings (SP-05 through SP-09) were then drilled outside the warehouse to the south and west, and two additional monitoring wells (MW-05 and MW-06) were installed to the southwest in the inferred downgradient and cross-gradient directions of the former creosoting retort. Six shallow soil samples (SS-01 through SS-06, approximately 1 ft deep) were collected to the east of the warehouse to further investigate the chromium detected in MW-02 groundwater. Soil and groundwater samples were analyzed for PAHs, lead, and chromium. cPAH concentrations exceeded the MTCA Method A industrial-use CULs in soil samples from the three borings immediately west and south of the warehouse (SP-06, SP-07, and SP-08), and cPAH and naphthalene in MW-05 and MW-06 groundwater exceeded MTCA Method A CULs. Chromium and lead were detected at concentrations less than the MTCA Method A CULs in all soil samples.

- 3) **2008 City of Tacoma Materials Handling Laboratory Remedial Investigation.** A remedial investigation (RI) was completed for the former City of Tacoma Materials Handling Laboratory, and it included installation of three permanent monitoring wells (MHLMW-6 through MHLMW-8) screened from approximately 26 to 36 ft bgs and collection of groundwater reconnaissance

samples from temporary well points in three soil borings (HSA-8 through HSA-10, at approximately 25 ft bgs) on the Site. These wells and borings were installed as part of a larger remedial investigation to assess onsite and offsite impacts of prior TCE releases at the Materials Handling Laboratory. Pacific Groundwater Group (PGG) found elevated TCE concentrations in groundwater extending 200 ft onto the northeast corner of the Site, with the extent of the plume delineated by boring HSA-10.

- 4) **2008 Additional Soil and Groundwater Characterization.** A soil and groundwater investigation was conducted to define the extent of PAHs in soil and groundwater. The investigation included five soil borings (SB-01 through SB-05) to the north, south, east, and west of the former creosoting retort area and three monitoring wells: one (MW-07) located within the footprint of the former creosoting retort area, one (MW-08) located inside the warehouse to the north, and one (MW-09) located adjacent to MW-05 to examine deeper (70 ft bgs) groundwater quality near the former creosoting retorts. Soil samples were analyzed for PAHs, and in one sample (SB\_03) collected north of the creosoting operations, cPAH TEQ detections exceeded the MTCA Method A Industrial CUL. Reconnaissance groundwater samples collected from soil borings and monitoring well samples were analyzed for PAHs. Naphthalene concentrations exceeded the MTCA Method A CUL in reconnaissance groundwater samples collected via direct-push temporary well points west of the warehouse (SB-05, MW-07, MW-09). cPAHs exceeded MTCA Method A CULs in all locations except the sample collected along the southeast corner of the warehouse (SB-02). In monitoring well groundwater samples collected from wells to the south and west of the warehouse (MW-05 and MW-06), naphthalene concentrations exceeded MTCA Method A CULs; cPAH concentrations exceeded MTCA Method A CULs in those locations as well as in the warehouse (MW-07) and slightly exceeded MTCA Method A CULs in deeper groundwater (MW-09).

Six additional soil borings (SB-06 through SB-11) were advanced in 2009 within the Sound Transit ROW to the south. Groundwater samples were collected from the temporary wellpoints installed during drilling and analyzed for PAHs including naphthalenes and VOCs. Naphthalene concentrations exceeded MTCA Method A CULs in samples from SB-05 and SB-09, closest to the warehouse. No other samples exceeded MTCA Method A CULs.

- 5) **2014 Focused Subsurface Investigation.** A focused subsurface investigation was conducted on the properties on behalf of the owners of the west-adjacent properties in 2014. Nine borings (ECI-B1 through ECI-B9) were drilled to 40 ft bgs for collection of groundwater reconnaissance samples beneath the Shea and Nyssen buildings. At each boring location, two representative soil samples and groundwater samples were collected, one at the water table and one at 40 ft bgs. Samples were analyzed for total petroleum hydrocarbons (TPH), benzene/toluene/ethylbenzene/xylenes (BTEX), and naphthalene. Naphthalene exceeded the MTCA Method A CUL in the deeper groundwater samples at ECI-B1 and ECI-B2 nearest the Shea building property line. Elevated naphthalene concentrations were not detected on the Nyssen property, beneath the Shea warehouse, or in groundwater samples collected at the water table. Concentrations in soil samples did not exceed MTCA Method A CULs, and results in soil were primarily non-detect.
- 6) **2016 Vapor Intrusion Investigation.** Two sub-slab soil vapor samples were collected in 2016, one each in the eastern and western halves of the Shea building. Both samples were analyzed for naphthalene and BTEX. Soil vapor concentrations in both samples were below the MTCA Method B sub-slab soil vapor screening levels.
- 7) **2009–2014 Initial Remedial Investigations.** In June 2010, three monitoring wells were installed off property to further delineate the groundwater naphthalene plume. The additional wells



included MW-10 in the City of Tacoma ROW west of the former creosoting retort area, MW-11 in the ROW to the southwest of the former retort area, and MW-12 to the northwest of the former retort area.

The monitoring well borings were advanced to a depth of 46 ft bgs, with split-spoon samples collected at 5-ft intervals for soil characterization. The upper low-permeability layer, consisting of stiff sandy silt, was encountered at 45 ft bgs at MW-12 but was not reached in the other well borings. The well screens were set immediately above the low-permeability layer from 35 to 45 ft bgs. A slight naphthalene odor was encountered in the lower saturated-zone soil from approximately 35 to 40 ft bgs at MW-10, but a sheen was not observed. Odors and sheens were not encountered at MW-11. A slight naphthalene odor was encountered at MW-12 beginning at 30 ft bgs, and strong odors were noted at 40 ft bgs; a sheen was observed on groundwater on the split-spoon sampler but was not replicated during a sheen test performed on soil from the MW-12 interval with strong odor. Soil samples were collected from the lower saturated interval where creosote odors were noted but ultimately were not analyzed because of the absence of sheen, non-aqueous phase liquids (NAPLs), or other indications of the presence of source contamination in soil.

One soil boring (SP-2B) was also installed within the warehouse in the vicinity of the former creosoting retort area in June 2010. Intermittent oily odor and trace sheen were observed at SP-2B beginning approximately at 8 ft bgs, and a strong naphthalene odor and sheen were observed below approximately 30 ft bgs. Soil samples were collected at 15, 30, 35, and 45 ft bgs and analyzed for PAHs and naphthalene. The maximum concentration of naphthalene measured in soil was 470 milligrams per kilogram (mg/kg) at 30 ft bgs. The maximum concentration of cPAHs was 9.2 mg/kg, also at 30 ft bgs.

The existing monitoring well network was sampled in June 2010 and December 2011, with groundwater samples from all wells analyzed for PAHs and from a subset of wells for VOCs, including naphthalene. The maximum naphthalene concentration detected during the two sampling events was 14,000 micrograms per liter ( $\mu\text{g/L}$ ) at MW-10 in December 2011. The maximum concentration of cPAHs was 8.2  $\mu\text{g/L}$  detected at MW-06. Elevated concentrations of benzene, 1,2,4-methylbenzene, 1,3,5-methylbenzene, ethylbenzene, and xylenes were also detected in MW-10 and MW-12.

Quarterly groundwater monitoring was conducted at a subset of Site monitoring wells from 2012 to 2013 to confirm that naphthalene concentrations were stable within a reasonable range of seasonal fluctuations. Quarterly monitoring samples were collected in November 2012 and March, June, and October 2013. The quarterly monitoring network included MW-01, MW-05, MW-06, MW-07, MW-10, MW-11, and MW-12. The deeper aquifer well MW-09 was also sampled during the first and last quarterly events. Results from the 2012–2013 quarterly sampling were generally consistent with the 2010–2011 sampling events, with significantly elevated naphthalene concentrations in MW-06, MW-10, and MW-12, and a maximum naphthalene concentration of 14,000  $\mu\text{g/L}$  detected in MW-10. Concentrations of ethylbenzene and xylenes were also detected at elevated concentrations in MW-10 and MW-12.

In 2011 and 2012, temporary well points (SB-21 through SB-29, SB-31 through SB-39) were installed to delineate the extent of the naphthalene plume in groundwater, with groundwater reconnaissance samples analyzed for VOCs, including naphthalene. Naphthalene detections in these groundwater reconnaissance samples ranged from non-detect in samples collected to the north, south, and east of the property to a maximum of 17,000  $\mu\text{g/L}$  in the sample collected at 40 ft bgs from the MW-9 boring directly west of the former creosoting retort area. Borings to

the west and northwest of the former creosoting retort area (SB-29, SB-21, SB-23, and SB-31 through SB-36) also yielded elevated naphthalene concentrations, with a maximum concentration of 5,400 µg/L in SB-29.

In December 2011, indoor air samples for naphthalene analysis were collected from three locations inside the warehouse building and one upwind outdoor area immediately after the building had been shut for the weekend. The naphthalene concentrations measured in indoor air ranged from 0.82 to 1.1 micrograms per cubic meter (µg/m<sup>3</sup>), less than the applicable MTCA Method B CUL of 1.4 µg/m<sup>3</sup> at the time of sampling.

- 8) **2018–2021 Supplemental Remedial Investigations.** In 2018, one monitoring well (MW-14) and four soil borings (SB-40 through SB-43) were installed to delineate the extent of groundwater contamination in and around the former retort area. The boring for MW-14 was advanced to 80 ft bgs, and based on field-screening, the well screen was set within the most impacted shallow groundwater interval from 35 to 45 ft bgs. Soil samples were collected from the MW-14 boring at the observed creosote-impacted interval and at three underlying intervals and analyzed for VOCs and cPAHs. Naphthalene and cPAHs were detected at concentrations of 167 mg/kg and 8.45 mg/kg, respectively, in a soil sample collected from 20.5 to 21 ft. Soil borings SB-40 through SB-43 were advanced to depths of 80 to 85 ft bgs, with the upper low-permeability silt layer observed in all borings at depths of 47 to 49 ft bgs (measured from the warehouse floor grade) and the lower low-permeability silt layer observed in all borings except SB-41 at depths ranging from 69 to 72 ft bgs. The soil most heavily impacted by creosote was observed at SB-43 in the western portion of the former creosote retort. At this location, strong odor and rainbow sheen were observed between approximately 25 and 40 ft bgs. Creosote impacts were also noted in SB-40 (approximately 27 to 40 ft bgs) and in SB-41 and SB-42 (approximately 25 to 28 ft bgs). Representative soil samples were collected from the impacted intervals and underlying intervals without field indications of contamination at each boring location. Samples were analyzed for VOCs and cPAHs, and a representative highly contaminated sample from SB-43 was additionally analyzed for pentachlorophenol.

In January 2019, reconnaissance groundwater samples were collected at the targeted locations for new wells MW-15, MW-16, and MW-17. These samples were collected for screening purposes prior to permanent well installation, to refine the intended monitoring locations at the downgradient edges of the groundwater contaminant plume. Based on field observations of naphthalene odor and screening sample results with elevated naphthalene, the permanent well locations at MW-16 and MW-17 were both shifted northward. In August 2020, MW-15, MW-16, and MW-17 were installed to fully delineate the groundwater naphthalene plume. The wells were installed inside the west-adjacent Shea warehouse (MW-15), outside the northwest-adjacent Nyssen building (MW-16), and on the property to the north of MW-12 (MW-17). The monitoring well borings were advanced to depths of 45 to 50 ft bgs; the upper low-permeability layer was encountered at depths of 41.5 to 43.5 ft bgs, and the well screens were set immediately above it. Slight naphthalene odor was encountered only in saturated-zone soil from approximately 39 to 40 ft bgs at MW-16, and sheens were not encountered in any well boring locations. Soil samples for laboratory analysis were not collected because soil was not observed to be impacted.

An additional four quarters of monitoring data were collected from the Site monitoring well network to fully delineate the groundwater naphthalene plume in September and December 2020, and in March and June 2021. The well network included MW-01, MW-05, MW-06, MW-09, MW-10, MW-11, MW-12, MW-14, MW-15, MW-16, and MW-17. MW-04 and

MW-07 were not sampled because their screened intervals were not sufficiently deep to sample the most contaminated zone of groundwater immediately above the uppermost low-permeability layer, and MW-01 was not sampled because of inaccessibility and location relative to the former creosoting retort area. During the first quarter of monitoring, samples were analyzed for VOCs, and selected samples from new wells (MW-14 through MW-17) and wells near the former creosoting retort area (MW-05, MW-06, and MW-09) were additionally analyzed for cPAHs and other selected semivolatile organic compounds (SVOCs). Based on the results of the first round of quarterly monitoring, during which only samples collected from MW-06 had detectable cPAHs, cPAHs and other SVOCs were monitored only at MW-06. MW-05 has a shallower screened interval than other shallow wells in the monitoring network, and no contaminants were detected in samples collected from it during the first round of sampling despite MW-05 being located adjacent to the former creosoting retort. It was determined that MW-05 was also screened too shallow to sample the most contaminated zone of groundwater, and it was subsequently removed from the monitoring network. The monitoring well network for the remaining three quarterly monitoring events in 2020–2021 consisted of shallow wells MW-06, MW-10, MW-11, MW-12, MW-14, MW-15, MW-16, and MW-17, and deep well MW-09.

To assess the potential for vapor intrusion, two sub-slab soil vapor samples (VP-01 and VP-02) were collected within the south warehouse in 2020. The vapor points were installed adjacent to the locations of existing soil borings SP-2 and MW-07, where previous field-screening identified the strongest indications of creosote contamination in shallow soil. Sub-slab vapor sample points VP-01 and VP-02 were installed by drilling through the warehouse floor with a roto-hammer and installing a vapor pin implant sealed with a silicone gasket. The sample points were allowed to equilibrate for a minimum of 1 week after installation prior to sample collection.

## 2.2 Summary of Results

Appendix A provides the logs for soil borings and monitoring wells installed at the Site. Figure 1 summarizes the RI soil and groundwater CUL exceedances, and RI Figures 5.1 through 5.3 (see Appendix B) provide more detailed depictions of the Site data. The RI tables (see Appendix C) provide tabulated summaries of the proposed Site CULs and data.

Soil contamination is generally limited to the area beneath and immediately adjacent to the former creosoting retort area, except for limited exceedances of the proposed CUL for cPAHs to the north (which are likely associated with historic regrading). The vertical extent of contamination in soil and groundwater is bounded by the lowermost extent of a silt confining layer from 45 to 50 ft bgs, below which there are no exceedances of CULs for naphthalene or cPAHs in soil.

The naphthalene and benzene/xylene groundwater plume radiates in all directions from the presumed source area in the vicinity of the former creosoting retort. While the delineated plume shows no strong flow direction, the overall greatest migration aligns with the horizontal hydraulic flow direction to the north-northwest. Due to the low hydraulic gradient (typically less than 1 ft Site-wide) and biodegradation, the plume has largely been static over time with slight seasonal variability.

## 2.3 Conceptual Site Model

This section provides a summary of the conceptual site model (CSM) for contamination related to the former creosote plant and is discussed in more detail in the draft RI report. The CSM demonstrates the current understanding of the nature and extent of contamination relative to the presumed historic source area in the vicinity of the former creosoting retort and migration pathways to receptors.

### 2.3.1 Potential Sources of Contamination

The loading and removal of creosote or pipe from the early 1900s to the mid-1930s would likely have caused small to moderate releases of creosote. During historical Site operations, creosote releases that likely originated as surface spills were able to saturate soil and migrate downward through the unpaved, permeable ground surface and factory floors. Releases were most likely near or under the approximate footprint of the historical creosoting retorts (shown on Figure 2) and are the cause of present-day contamination on the Site. A significant portion of the creosote-contaminated soil in the vicinity of the former creosote retort was removed during construction of the warehouse that presently occupies the Site. The creosote soil footprint is currently below the southern portion of the warehouse. There are no continuing sources of hazardous substances stored or used at the Site.

Storage tanks containing gasoline were removed from the Site in 1989. Prior to the removal of gasoline storage tanks in 1989, no gasoline releases were documented onsite, and contamination related to potential releases have not been identified during subsequent environmental investigations.

### 2.3.2 Contaminant Transport Pathways

Based on the current understanding of the Site, current land use, and numerous environmental investigations, three primary transport mechanisms have been identified:

- 1) **Historical gravity-driven vertical migration of NAPL creosote within the vadose and saturated zones.** The primary transport mechanism in vadose-zone soil was the gravity-driven downward migration of relatively dense NAPL creosote from releases during historical Site operations from the early 1900s to the mid-1930s. The inherent viscosity of creosote tends to limit its transport in soil, and cPAHs and naphthalene tend to adsorb strongly to organic material in soil, further limiting their transport. However, Site investigations have shown that creosote likely slowly migrated downward through the vadose zone and saturated zone over the last 90 years due to its relative density. Downward migration of the creosote continued to the silt confining layer at 45 ft bgs, with a significant portion of the soil contamination at the Site currently located between depths of approximately 20 and 45 ft bgs. The source area is defined by the presence of creosote product, including visible creosote stringers and sheen-producing soil, that occurs primarily in the 30 to 45 ft bgs depth interval in the vicinity of the former creosote retort. Within this source area, the greatest concentrations of naphthalene, benzene, and xylenes in groundwater are located within the approximate 35 to 45 ft bgs interval directly above the low permeability silt layer. Markedly elevated contaminant concentrations are present in samples collected from this interval versus the overlying portions of the saturated zone. The stratification of contamination in the upper saturated zone is attributed to biological degradation by aerobic bacteria in the more oxygen-rich upper interval, compared to a lesser

rate of biodegradation in lowermost interval. Strong downward hydraulic gradients may additionally influence the distribution of contaminants in the upper saturated zone.

- 2) **Leaching of soluble fractions of the creosote mixture in the saturated zone and limited migration downward and laterally in the dissolved phase.** The Site has been paved for its recent operational history, thereby preventing stormwater infiltration and preventing leaching of contaminants from vadose-zone soil into the shallow aquifer. Therefore, the primary mechanism driving ongoing contaminant migration in groundwater is the leaching of soluble naphthalene and benzene from creosote-contaminated source soil in the saturated zone. Beyond the area of residual soil contamination in the source area, the extent of naphthalene in groundwater appears to be dictated by the flat hydraulic gradient to the north-northwest onsite and by localized secondary flow directions. A “halo” of elevated naphthalene concentrations in groundwater beyond the boundary of the source area is present in the upgradient and cross-gradient directions due to these secondary flow directions rather than to the presence of contaminated soil in those areas. Groundwater data from the borings surrounding the monitoring well network demonstrate that the elevated naphthalene concentrations in the vicinity of the former creosoting retort area decreases substantially with increased distance from the former retort. This decrease is attributable to the degradation of naphthalene (particularly at the edges of the plume).
- 3) **Volatilization of naphthalene, benzene, and xylene to soil gas in the vadose zone.** Chemicals associated with historic creosoting operations are volatile and semivolatile in nature. These chemicals present a potential risk to indoor air quality if present in high concentrations and if structures are located or built over contaminated areas.

### 2.3.3 Potential Receptors and Exposure Pathways

The three primary exposure pathways of concern at the Site are direct contact with groundwater via consumption of drinking water, worker direct contact with soil, and soil leaching to groundwater:

- 1) **Consumption of Drinking Water.** Groundwater at the Site is not currently used for drinking water but is potentially potable. Therefore, the exposure pathway of direct contact via consumption of drinking water is considered complete at the Site.
- 2) **Direct Contact.** Impacted soil at the Site is not currently accessible via direct contact due to the presence of overlying buildings or pavement but could be contacted by workers or other receptors if future development were to occur. The soil direct contact pathway is considered incomplete for terrestrial ecological receptors at the Site. Leaching from impacted soil to groundwater via infiltration of surface water likely occurred in the past before construction of the current impervious surfaces of buildings and pavement in the former creosoting retort area. Leaching from impacted soil due to groundwater flow through impacted soil in the saturated zone to groundwater is presumed to be ongoing.
- 3) **Inhalation of Indoor Air.** The results of sub-slab soil vapor samples collected during the RI indicate that the vapor intrusion pathway is not complete under current conditions. The pathway may need to be reevaluated if conditions change (e.g., redevelopment).

The RI determined that due to the type and depth of Site contamination, the paved surface of the Site, and the location of the nearest residential area, there is a low risk of environmental exposures to residential communities, vulnerable populations, and overburdened communities from this Site.

## 3.0 PILOT STUDY APPROACH

This section discusses the approach for conducting a pilot study at the Site, including the objectives of the study, the technologies considered, and the general description of the pilot study to be conducted using the selected technology. Section 4.0 provides the pilot study implementation details.

### 3.1.1 Pilot Study Objectives

The objectives of the pilot study are to (1) apply a technology to reduce contaminant mass, contain contaminant source material, and lower contaminant flux in the creosote source area, (2) evaluate the results of the application, (3) provide a recommendation for potential expanded use of the technology in the source area, and (4) provide information to complete an appropriate feasibility study (FS) for the Site.

### 3.1.2 Technology Evaluation and Selection

While multiple technologies are available for remediating creosote source areas, Landau identified three priority technologies for use in a source-area pilot study, each potentially applicable for reducing creosote source-area mass and contaminant flux and each appearing to have the highest likelihood for good value-to-cost ratios. Landau additionally evaluated several other technologies (e.g., thermal treatment technologies, *in situ* solidification/stabilization, and excavation and removal) but did not prioritize those for the pilot study given the likely low value-to-cost ratio or limited applicability due to Site constraints. Following is a brief discussion of each of the prioritized technologies:

- **Enhanced *In Situ* Bioremediation (EISB).** This broad class of treatment typically involves injecting a combination of an organic substrate, nutrients, other amendments, and/or specialized microbes to facilitate the biodegradation of contaminants. EISB can occur aerobically or anaerobically depending on the contaminant to be treated. This type of injection creates conditions that stimulate bacterial growth and, since the injected materials are soluble in water, may flow some distance downgradient from the point of injection. While this technology can treat contaminants sorbed to soil and dissolved in pore water with relatively minimal site disturbance, Landau has not selected this technology for use in the creosote source area pilot study due to the decreased availability for biodegradation of high-concentration creosote source material (e.g., higher ring PAHs) and the correspondingly limited efficiency of the treatment in high-mass areas.
- ***In Situ* Chemical Oxidation (ISCO).** This type of treatment involves the introduction of a chemical oxidant into the subsurface for the purpose of transforming groundwater or soil contaminants into less harmful chemical species. Examples of oxidants include sodium permanganate, sodium persulfate, ozone, and Fenton's Reagent (a hydrogen peroxide/ferrous ion solution). In general, oxidants will persist in the subsurface up to several months for permanganate and persulfate applications and may require reapplication to enhance effectiveness. This technology destroys contaminant mass *in situ* relatively rapidly and with minimal site disturbance.
- ***In Situ* Geochemical Stabilization (ISGS).** Source area treatment by ISGS involves an *in situ* injection of an ISCO chemical (sodium permanganate) along with binders and reagents designed to both treat high-concentration source material (NAPL or dissolved phase) through oxidation as



well as reduce the potential for contaminant leaching of the residual NAPL and/or high-concentration soil. The ISGS process deposits precipitates around the NAPL, hardening and chemically weathering the NAPL and increasing the NAPL viscosity, which reduces both the flux of contaminants from the NAPL and the hydraulic conductivity of the aquifer in the target treatment zone. This technology destroys contaminant mass *in situ* in a relatively rapid timeframe, stabilizes NAPL in the source area, requires relatively simple materials and equipment, generates no significant waste, and minimizes site disturbance.

Based on the pilot study objectives and the location of the source area within the warehouse, Landau has selected the ISGS technology for use in the pilot study. It both contains and treats the source mass, reduces flux from the source mass to groundwater, and reduces the hydraulic conductivity of the aquifer in the target treatment zone with relatively minimal site disturbance, exhibiting some of the positive aspects of both ISCO and *in situ* solidification/stabilization technologies. The ISGS technology has been successfully employed in other creosote source areas around the country, and Landau expects the technology to be productive at the Site.

### 3.1.3 Pilot Study Description

The pilot study will consist of a single injection of ISGS reagents within what appears to be the primary dense nonaqueous phase liquid (DNAPL) horizon in the western portion of the former creosoting retort area, monitoring the effects of the ISGS injections, evaluating the results, and preparing a report documenting the pilot study.

The ISGS reagents will be injected in new polyvinyl chloride (PVC) injection wells installed in the western portion of the former creosote source area in the vicinity of boring SB-43, which had strong evidence of creosote contamination during drilling and the highest soil naphthalene in the source area. Section 4.3 discusses the layout and preliminary design of the injection wells. Based on observations made during injection well installation and baseline soil and groundwater sampling conducted in the injection wells, the layout and design of the injection and performance monitoring networks may be modified.

Performance monitoring will be conducted in two existing monitoring wells and in five new monitoring wells installed around the perimeter of the target treatment zone. Monitoring will take place before, during, and after the injection event (see Section 4.5).

The ISGS product to be used in the pilot study will be Evonik's ISGS technology, which consists of sodium permanganate and a proprietary blend of cold-water soluble inorganic metals and salts. The technology is licensed to Innovative Environmental Technologies, Inc. (IET), which provides the product and conducts the injections. Landau will set up the pilot study, coordinate schedule and field activities with stakeholders, coordinate the installation of the injection wells and monitoring wells, develop the wells, coordinate the injection event, provide oversight during fieldwork, conduct the performance monitoring, and incorporate the pilot study results in the FS.

## 4.0 PILOT STUDY IMPLEMENTATION

This section describes the field activities related to pilot study implementation, including treatability testing, well installation, amendment injection, groundwater monitoring, equipment decontamination, and management of residual wastes. Field activities will be conducted in accordance with a Site-specific Health and Safety Plan (HASP), which will be prepared prior to initiation of field activities.

### 4.1 Cultural Resource Review

Prior to ground-disturbing activities during the implementation of the pilot study work plan and consistent with Washington Administrative Code (WAC) 173-340-815(3)(a), Landau will initiate a cultural resource review by Ecology. An Inadvertent Discovery Plan will be prepared to avoid, minimize, or mitigate the effects of the pilot study field activities on archaeological and cultural resources.

### 4.2 Underground Injection Control Registration

Prior to the pilot study injection, the Site will be registered with Ecology's Underground Injection Control (UIC) program per Chapter 173-218 of the WAC. Per WAC 173-218-040, the injection wells at the Site are considered Class V injection wells because they will receive "fluids intended to clean up, treat or prevent subsurface contamination." Class V UIC wells must be registered and either rule-authorized (WAC 173-218-070) or receive a state waste discharge permit issued by Ecology.

### 4.3 Injection and Monitoring Well Installation

Landau will subcontract a state-licensed well driller to install seven injection wells and five monitoring wells. Figure 3 shows the approximate locations of the wells, which may be moved based on the presence of utilities or due to warehouse operational needs. The driller will install the wells with either a hollow-stem auger or sonic drill rig. Based on the observations during drilling of soil borings and monitoring wells in the former creosote retort area and the distribution of naphthalene and PAHs in soil and groundwater, the injection wells will be installed with screens between 25 ft and 35 ft bgs (which is the warehouse floor; up to 3 ft above the surrounding grade; see Table 1). Based on the relatively coarse and likely permeable nature of the aquifer, it is anticipated that the radius of influence (ROI) in the injection wells will be at least 10 ft. Allowing for 1 ft of overlap in ROIs, the injection wells will be spaced approximately 19 ft apart (see Figure 3). The injection wells will be installed, developed, and sampled before installation of the performance monitoring wells. Based on observations made during drilling and the results of the baseline groundwater sampling conducted in the injection wells and existing monitoring wells, the layout and design of the injection network and performance monitoring network may be modified. For example, Figure 3 shows the location of two potential contingency injection well locations that may be installed and used based on field observations of an abundance of DNAPL in the injection well borings on the west side of the target treatment zone or elevated baseline groundwater sampling results in existing monitoring wells MW-05 and MW-09.

Five performance monitoring wells will be installed around the target treatment zone. All monitoring wells will be screened between 25 ft and 35 ft bgs (relative to the warehouse floor). Two wells will be



installed on the north side of the target treatment zone, two wells will be installed on the south side of the target treatment zone, and one well will be installed on the east side of the target treatment zone, with all wells located approximately 10 to 15 ft outside the target treatment zone. Because existing monitoring wells MW-05 (screened 25 to 35 ft bgs) and MW-09 (screened 60 to 70 ft bgs) are located to the west of the former creosote retort area, no additional performance monitoring wells will be installed on the west side of the target treatment zone.

The wells will be constructed of Schedule 40 PVC well materials, with silica sand backfill, a bentonite annular seal, and a flush-mount surface monument set in concrete. Landau will develop each monitoring well using surging, bailing, and pumping techniques to clean out silty water introduced during the well installation process, establish a hydraulic connection between the aquifer and the well filter pack, and reduce the groundwater turbidity in the well.

A state-licensed surveyor will determine the horizontal and vertical coordinates of the wells. The elevations of the wells will be relative to NAVD88, and the horizontal locations of the wells will be relative to NAD83/91,<sup>2</sup> Washington State Plane Coordinate System North Zone.

## 4.4 *In Situ* Geochemical Stabilization Reagent Injection

This section provides the general procedures to be followed during the ISGS reagent injections. The procedures may be refined or modified based on results of the initial injection well installation and treatability study.

### 4.4.1 Pilot Study Volume and Dosing

The preliminary design volume for the pilot study injections at the Site will be based on the following:

- ROI = 10 ft
- ROI overlap = 1 ft
- Treatment area = 32 ft by 72 ft, or approximately 2,300 SF
- Treatment length per well = 10 ft
- Effective porosity = 20 percent
- Target percentage of pore space to fill with ISGS reagent solution = 11 percent.

Based on these parameters and the conservative upper end of the typical range in reagent injection percentages (10 percent reagent), approximately 49,100 pounds of ISGS reagent will be injected during the pilot study.

### 4.4.2 *In Situ* Geochemical Stabilization Reagent Material Compatibility

Sodium permanganate is compatible with plastics (including polyethylene, polypropylene, and Teflon), many metals (including carbon steel and 316 stainless steel in neutral and alkaline solutions), and synthetic materials. Sodium permanganate is often incompatible with natural rubbers and fibers, so

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<sup>2</sup> North American Datum of 1983/1991.

contact with those materials should be avoided. Aluminum, zinc, copper, lead, and alloys containing these metals may be (slightly) affected by sodium permanganate solutions.

### 4.4.3 Mixing and Injection Procedures

Due to corrosivity, staff will wear compatible personal protective equipment during mixing and injection. Safety glasses, gloves, and PVC splash bibs or aprons will be worn. Health and safety measures will be detailed in the forthcoming HASP.

Sodium permanganate will be shipped to the Site in 3,000-pound caged plastic totes. Generally, to create the injection solution, the permanganate will be mixed with tap water and the other amendments in batches. Portable tanks and motorized paddles located in an injection trailer will be used to mix the solution. The solution will be pumped using a compressed, air-powered, double-diaphragm injection pump (made from compatible materials) into each injection well through a flexible chemically compatible hose (with a minimum pressure rating of 250 pounds per square inch [psi]) affixed to a cam lock at the wellhead. Pumping will continue until the design volume has been pumped into the well. Injection pressure and volume will be monitored throughout the process. At the end of the injection at each well, clean water will be pumped into the well to clean it out for potential future use.

More specifically, IET will use the following procedures and equipment.

#### 4.4.3.1 Procedures

- 1) **Subsurface Pathway Development.** Initially, compressed air will be delivered to the subsurface via IET's proprietary injection trailer system. This process allows for confirmation of open delivery routes while enhancing horizontal injection pathways. By confirming open and viable subsurface delivery pathways, it is anticipated that upon introduction of the ISGS reagent, the injectate will flow freely, thus minimizing health and safety risks associated with full oxidant injection lines and injection tooling when no subsurface delivery route has been established. Confirmation of open and free pathways is accomplished via observed pressure drops and free moving compressed gases to the subsurface.
- 2) **ISGS Emplacement.** A 10 percent solution of ISGS will be introduced at pressures between 15 and 50 psi and flow rates between 15 and 25 gallons per minute (gpm). A small amount of water will then be introduced to rinse the injection equipment.
- 3) **Post Liquid injection – Compressed Air Injection.** The injection lines will be cleared of liquids, and all injectants will be forced into the created formation and upward into the vadose zone. This step is performed so that all material will be injected outward into the formation, minimizing any surface excursions of injectants following the release of the injection pressure. Once the injection cycle is complete, the injection point will be temporarily capped to allow the pressurized subsurface to accept the injectants.

**Spill Prevention.** Spill prevention measures will be used during injection activities to prevent the accidental release of injection fluid. Mixing tanks, injection pumps, and major hose connections will be placed in containment berms. Pumps and hoses will be attended and monitored during injection. All hose connections will be secured with zip ties. A wet-dry vacuum will be kept onsite during injection activities to immediately collect spilled fluid.

#### 4.4.3.2 Equipment

The injections will occur via IET's mobile oxidation injection trailer as described:

- **Injection Lines.** High-pressure stainless steel, braided rubber, 1-inch diameter hoses.
- **Injection Trailer (see photo below).** IET self-contained injection trailer, consisting of two 200-gallon conical tanks capable of maintaining 30 percent solids as a suspension via lightning mixers; onboard generator, all stainless-steel piping system, 2-inch pneumatic diaphragm pump with an operating pressure of 110 psi.; onboard 37 CFM/175 pounds per square inch gauge (psig) compressor with 240 gallons of air storage; and self-contained eye wash and safety shower.

#### IET INJECTION SYSTEM UNITED STATES PATENT 7,044,152



Injection Trailers Include: Multiple Liquid Feed Systems, Stainless Steel Piping, Isolated Compressed Gas Containment, Safety Shower, Eyewash Station, Onboard Generator, Chemical Resistant Construction, Mobile Office Space



## 4.5 Performance Monitoring

Performance monitoring will be conducted to evaluate the short-term effects of amendment injections on groundwater levels and groundwater flow directions near the pilot study treatment zone and longer-term effects of amendment injections on groundwater quality near the pilot study treatment zone.

Table 2 summarizes the performance monitoring well network and monitoring frequency.

### 4.5.1 Water Level Monitoring

Water-level elevations will be monitored in the five new performance monitoring wells (MW-18 to MW-22) before, during, and after pilot study injection activities. Baseline water levels will be measured prior to amendment injection, and water levels will be measured periodically during the injection period, immediately after injection activities have been completed, and during quarterly groundwater sampling events. Water-level elevations will also be monitored in accessible existing Site monitoring wells and in the injection wells during the baseline and quarterly groundwater sampling events.

### 4.5.2 Groundwater Sampling

Performance groundwater sampling will consist of one baseline sampling event prior to amendment injection and quarterly groundwater sampling beginning approximately 3 months after amendment injection to evaluate treatment effectiveness. During each monitoring event, samples will be collected using low-flow sampling procedures from two existing monitoring wells (MW-05 and MW-09) and five new performance monitoring wells (MW-18 to MW-22). During the baseline sampling event, the injection wells (IW-01 through IW-07) will also be sampled, and accessible existing monitoring wells (MW-04, MW-06, MW-07, MW-10, MW-11, MW-12, MW-14, MW-15, MW-16, and MW-17) will also be sampled during the baseline and final quarterly events. Field parameters (dissolved oxygen [DO], oxidation-reduction potential, conductivity, temperature, and pH) will be measured during well purging, groundwater samples will be submitted to an Ecology-accredited laboratory for analysis of BTEX and naphthalene by US Environmental Protection Agency (EPA) Method 8260D and PAHs by EPA Method 8270E with selected ion monitoring (SIM). One trip blank and one duplicate sample will be analyzed during each sampling event.

## 4.6 Equipment Decontamination

All non-dedicated sampling and injection equipment will be decontaminated according to the procedures described in the forthcoming HASP. This includes water-level monitoring instruments, sample tubing, and any other equipment that comes into contact with Site soil or groundwater. Equipment will be dedicated, when possible, to reduce the potential for cross-contamination.

## 4.7 Residual Waste Management

Investigation-derived waste (IDW) will consist of soil generated during drilling activities, water used for decontamination, rinsate from tanks and drums used for mixing injection solution, purge water from sampling of monitoring wells, concrete cores removed during well installation, and personal protective equipment (PPE). Concrete cores and PPE will be handled as municipal solid waste. Residual soil and

water will be stored either in drums or waste bins prior to characterization, profiling, and transportation for disposal at an appropriate offsite facility.

## 5.0 DATA EVALUATION AND REPORTING

Groundwater monitoring data collected after the pilot study injection will be used to evaluate the effectiveness of the ISGS technology, the need for additional source-area treatment, and full-scale injection design, if necessary. Data will also be used to determine the need and appropriate timing for active dissolved plume treatment and or monitored natural attenuation. After receiving the results of the four quarterly performance monitoring events, Landau will prepare a pilot study completion report documenting the treatability study, well installation and development, ISGS reagent injection, and performance monitoring. The report will include a summary of the installation process; a property map updated with the locations of the injection and performance monitoring wells; tables summarizing the survey results, well completion details, groundwater levels, and analytical data; groundwater elevation contour maps, as needed; well logs; and laboratory analytical reports.

## 6.0 USE OF THIS WORK PLAN

This work plan has been prepared for the exclusive use of 3102 TIC and their associated legal and insurance carrier teams for the pilot study at the former West Coast Door Facility in Tacoma, Washington. No other party is entitled to rely on the information, conclusions, and recommendations included in this document without the express written consent of Landau. Further, the reuse of information, conclusions, and recommendations provided herein for extensions of the project or for any other project, without review and authorization by Landau, shall be at the user's sole risk. Landau warrants that within the limitations of scope, schedule, and budget, our services have been provided in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality under similar conditions as this project. Landau makes no other warranty, either express or implied.

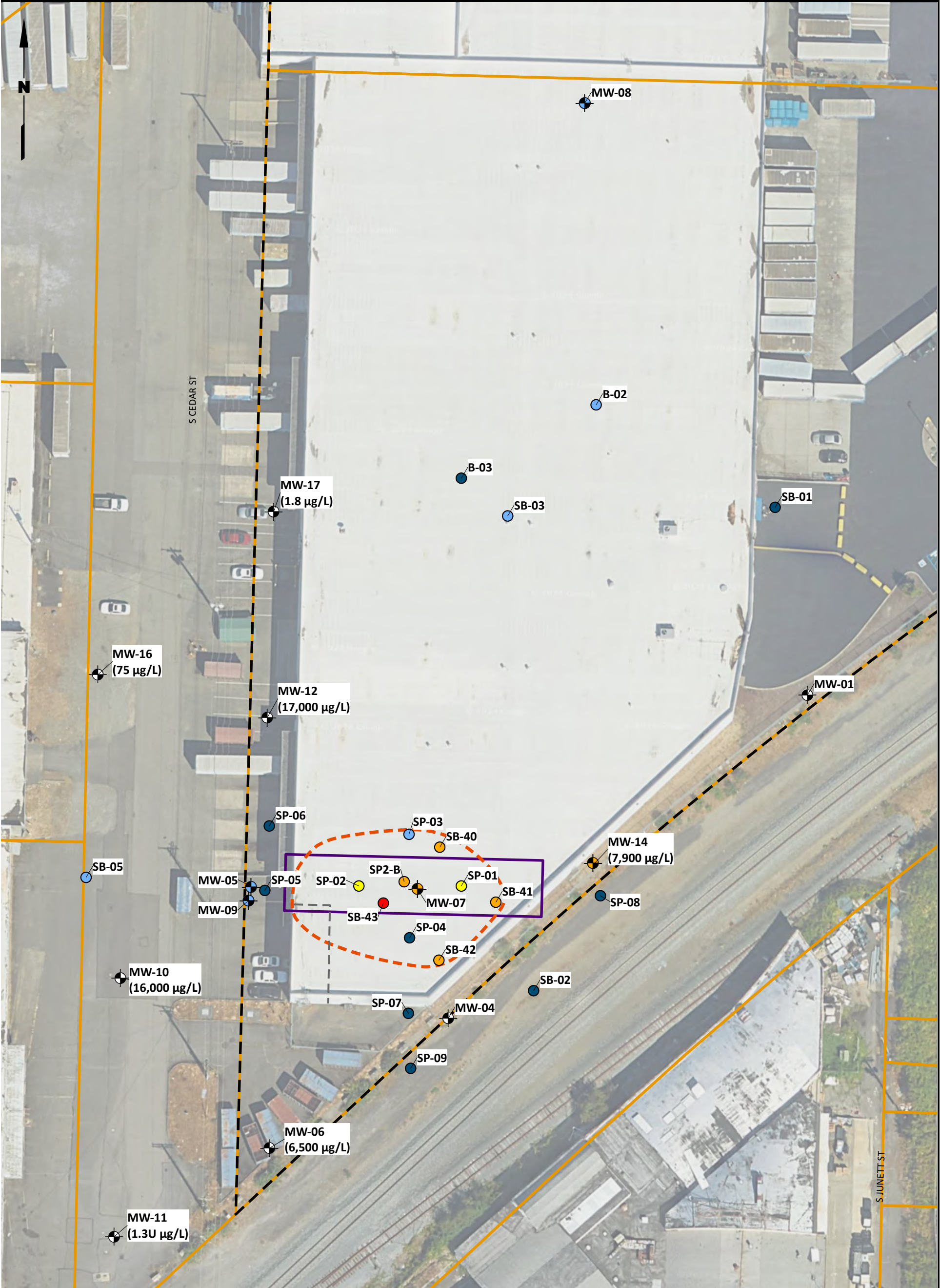
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**Legend**

- Monitoring Well
- Soil Boring
- Approximate Extent of Primary Source Soil Contamination (25-35 ft bgs)
- West Coast Door Site Boundary
- Creosoting Retort Area
- Tax Parcels

**Maximum Total Naphthalenes Concentration (mg/kg) 20-40 ft**

- Not Detected
- 0-5
- 5-50
- 50-500
- >500

**Notes**

1. Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

0 50 100

Scale in Feet

**MW-06 - Monitoring Well ID**  
**(6,500 µg/L) - Naphthalene Concentration**  
in Groundwater (June 2021)

Data Source: Floyd Snider; Pierce County GIS; Google Earth Pro.

West Coast Door Site  
Tacoma, Washington

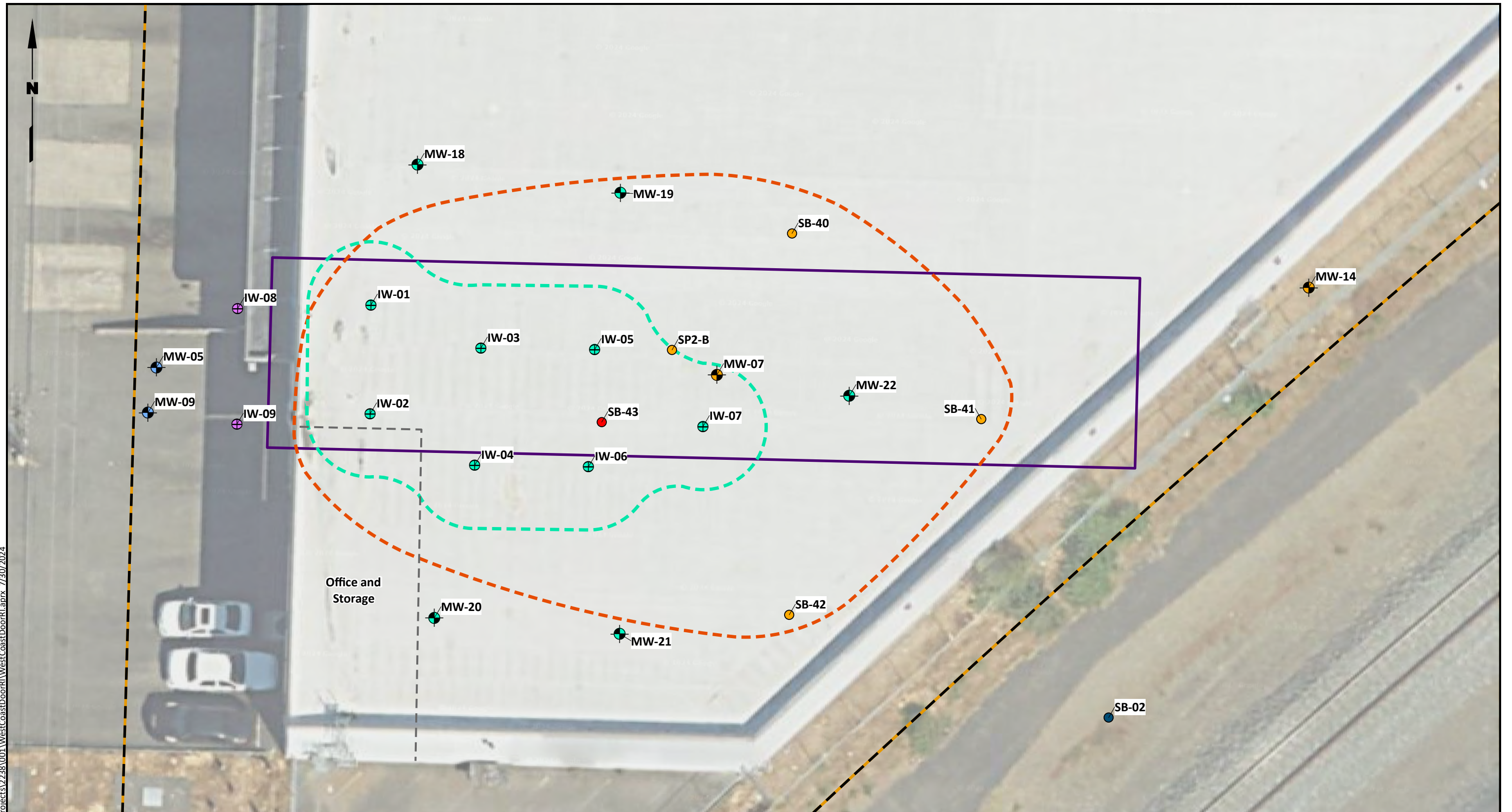
**Summary of Site Environmental Data**

Figure  
**2**

**LANDAU**  
ASSOCIATES



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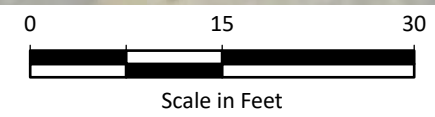


#### Legend

- Preliminary Performance Monitoring Well
- Proposed Injection Well
- Proposed Contingency Injection Well
- Monitoring Well
- Soil Boring
- Approximate Target Treatment Zone
- Approximate Extent of Primary Source Soil Contamination (25-35 ft bgs)
- Creosoting Retort Area
- West Coast Door Site Boundary
- Tax Parcels

#### Maximum Total Naphthalenes Concentration (mg/kg) 20-40 ft

- Not Detected
- 0-5
- 5-50
- 50-500
- >500



Data Source: Floyd Snider; Pierce County GIS; Google Earth Pro.

#### Note

- Black and white reproduction of this color original may reduce its effectiveness and lead to incorrect interpretation.

**Table 1**  
**Site Well Completions**  
**West Coast Door Site, Tacoma, Washington**

Well ID	Installation Date	Total Depth (ft bgs)	Screened Interval (ft bgs)	Top of Well Casing Elevation (ft NAVD 88)	Surface Completion	Notes
<b>Existing Wells</b>						
MW-01	6/18/1992	44	23.5–43.5	247.02 <sup>(1)</sup>	Flush-mounted	Missing; under pavement
MW-02	6/18/1992	44 <sup>(2)</sup>	23.5–43.5 <sup>(2)</sup>	247.36	Flush-mounted	
MW-03	6/18/1992	45	23.5–43.5	247.55	Flush-mounted	
MW-04	7/28/2006	35	25–35	246.27	Flush-mounted	
MW-05	9/16/2006	35	25–35	246.09	Flush-mounted	
MW-06	9/18/2006	35	25–35	245.97	Flush-mounted	
MW-07	1/26/2007	40	25–40	248.18	Flush-mounted	
MW-08	1/31/2007	40	25–40	248.24 <sup>(1)</sup>	Flush-mounted	Missing; under warehouse partition wall
MW-09	9/7/2007	70	60–70	245.99	Flush-mounted	
MW-10	6/10/2010	46	35–45	244.22	Flush-mounted	
MW-11	6/10/2010	46	35–45	243.55	Flush-mounted	
MW-12	6/11/2010	46	35–45	243.97	Flush-mounted	
MW-14	10/5/2018	45	35–45	250.13	Flush-mounted	
MW-15	8/11/2020	43.5	33.5–43.5	248.28	Flush-mounted	
MW-16	8/10/2020	41	31–41	246.97	Flush-mounted	
MW-17	8/10/2020	41.5	31.5–41.5	247.91	Flush-mounted	
<b>Proposed Injection Wells</b>						
IW-01	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
IW-02	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
IW-03	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
IW-04	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
IW-05	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
IW-06	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
IW-07	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
<b>Proposed Contingency Injection Wells</b>						
IW-08	–	35	25–35	–	Flush-mounted	Projected depths relative to ground surface
IW-09	–	35	25–35	–	Flush-mounted	Projected depths relative to ground surface

**Table 1**  
**Site Well Completions**  
**West Coast Door Site, Tacoma, Washington**

Well ID	Installation Date	Total Depth (ft bgs)	Screened Interval (ft bgs)	Top of Well Casing Elevation (ft NAVD 88)	Surface Completion	Notes
<b>Proposed Performance Monitoring Wells</b>						
MW-18	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
MW-19	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
MW-20	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
MW-21	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
MW-22	–	35	25–35	–	Flush-mounted	Projected depths relative to warehouse floor
Notes: (1) Well not accessible during 2020 re-survey; casing elevation is estimated from prior surveyed elevation in NGVD 29 using a local correction factor of +3.38 ft. (2) Well installation log not available, estimated from concurrent MW-01 and MW-03 construction details. For existing wells, the table has been modified from Floyd   Snider 2022 Draft RI/FS Report. Abbreviations: bgs      below ground surface ft        feet NAVD 88   North American Vertical Datum of 1988 NGVD 29   National Geodetic Vertical Datum of 1929						

**Table 2**  
**Pilot Study Performance Monitoring**  
**West Coast Door Site, Tacoma, Washington**

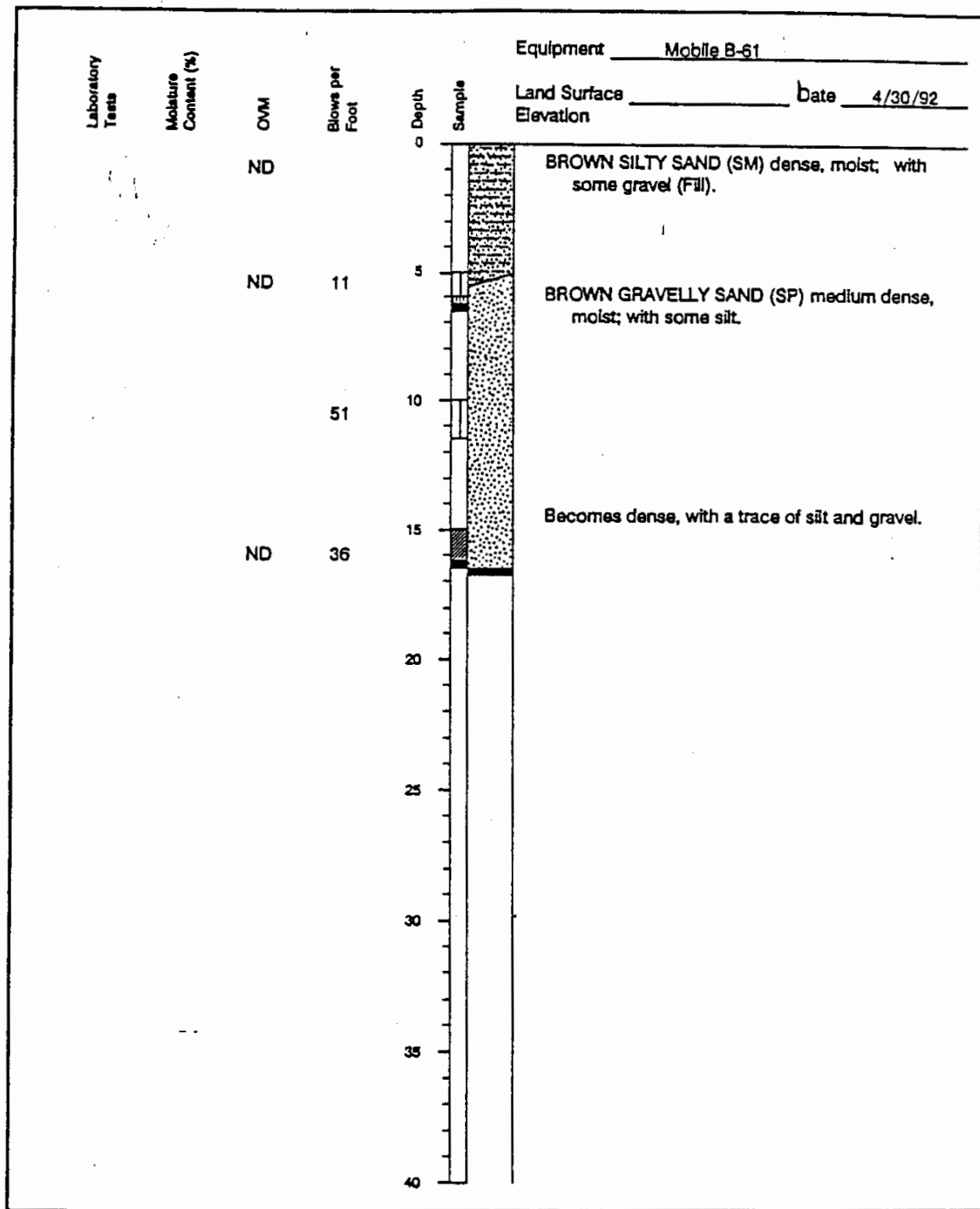
Well ID	Baseline Sampling	Post Injection Monitoring				Notes
		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Existing Wells						
MW-04	X				X	Sampled if accessible
MW-05	X	X	X	X	X	Water level monitoring during injection event
MW-06	X				X	
MW-07	X				X	
MW-09	X	X	X	X	X	Water level monitoring during injection event
MW-10	X				X	
MW-11	X				X	
MW-12	X				X	
MW-14	X				X	
MW-15	X				X	Located in the Shea Property warehouse to the west
MW-16	X				X	
MW-17	X				X	
Proposed Injection Wells						
IW-01	X					
IW-02	X					
IW-03	X					
IW-04	X					
IW-05	X					
IW-06	X					
IW-07	X					
Proposed Contingency Injection Wells						
IW-08						Sampled during baseline event if installed
IW-09						Sampled during baseline event if installed

**Table 2**  
**Pilot Study Performance Monitoring**  
**West Coast Door Site, Tacoma, Washington**

Well ID	Baseline Sampling	Post Injection Monitoring				Notes
		First Quarter	Second Quarter	Third Quarter	Fourth Quarter	
Proposed Performance Monitoring Wells						
MW-18	X	X	X	X	X	Water level monitoring during injection event
MW-19	X	X	X	X	X	Water level monitoring during injection event
MW-20	X	X	X	X	X	Water level monitoring during injection event
MW-21	X	X	X	X	X	Water level monitoring during injection event
MW-22	X	X	X	X	X	Water level monitoring during injection event
Notes:						
<div>1. X = monitored location.</div> <div>2. Depth to groundwater monitored in all locations during each event and in performance monitoring wells before, during, and after amendment injection.</div> <div>3. All samples analyzed for BTEX and naphthalene by EPA Method 8260D and PAHs by EPA Method 8270E with selected ion monitoring (SIM).</div> <div>4. One trip blank will be analyzed per sample cooler, and one duplicate sample will be analyzed per 20 samples collected.</div>						

## Soil Boring and Monitoring Well Logs





**Applied Geotechnology Inc.**  
Geotechnical Engineering  
Geology & Hydrogeology

**Log of Boring 1**  
Puget Sound National Bank/West Coast Door - Phase II  
Tacoma, Washington

PLATE  
**6**

JOB NUMBER  
15,536.003

DRAWN  
SES

APPROVED  
*JBA*

DATE  
18 Jun 92

REVISED

DATE

KB 01155

# BORING SP1

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp			Concrete-slab-on-grade. <u>Sand, gravel</u> , fill, with broken glass, and wood debris.		
5				SM	Creosote odor in soil mixed with wood debris at 5 to 6 feet below the ground surface. Sample pushed to 8 feet, with poor recovery.	SP1-3-4 SP1-7-8	
10		Damp			Boring terminated at 9 feet (refusal). Groundwater not encountered.  Boring abandoned with granular bentonite and patched with concrete.		
15							
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
Bellevue, Washington 98004

## BORING SP1

West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:  
JN-26192-1

Date:  
07/20/06

Logged by:  
RBR

Plate:  
A-1

# BORING SP2

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp		SM	Concrete-slab-on-grade. <u>Sand, gravel</u> , fill, dark brown, woody debris, with a strong creosote odor.	SP2-1-2	
5					Boring terminated at 2 feet (refusal). Groundwater not encountered.		
10					Boring abandoned with granular bentonite and patched with concrete.		
15							
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe.



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Bellevue, Washington 98004

## BORING SP2

West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:

JN-26192-1

Date:

07/20/06

Logged by:

RBR

Plate:

A-2

# BORING SP3

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp		SM	Concrete-slab-on-grade. <u>Sand, gravel</u> , fill, brick debris, brown.		
					Creosote odor in soil mixed with wood debris at 3 to 4 feet below the ground surface.	SP3-3-4	
5					<u>Sand, gravel</u> , medium to coarse sand, with gravel, no odor below 5 feet.	SP3-7-8	
		Damp					
10						SP3-10-11	
					Boring terminated at 11 feet (refusal). Groundwater not encountered. Boring abandoned with granular bentonite and patched with concrete.		
15							
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe.



**ENVIRONMENTAL  
ASSOCIATES, INC.**

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Bellevue, Washington 98004

## BORING SP3

West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:

JN-26192-1

Date:

07/20/06

Logged by:

RBR

Plate:

A-3

# BORING SP4

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0					Concrete-slab-on-grade.		
		Damp		SM	Sand, gravel, fill, brown.		
					Sand, gravel, organic woody debris, dark brown, slight creosote odor.	SP4-3-4	
5		Damp		GM	Sandy-gravel, medium to coarse sand, mixed with gravel, brown. No odor.	SP4-7-8	
10		Damp				SP4-10-11	
					Boring terminated at 11 feet (refusal). Groundwater not encountered. Boring abandoned with granular bentonite and patched with concrete.		
15							
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe.



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## BORING SP4

West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:

JN-26192-1

Date:

07/20/06

Logged by:

RBR

Plate:

A-4

# BORING SP5

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp			Asphalt pavement / gravel base.		
5				GP	<u>Sandy-Gravel</u> , gravel with medium to coarse sand, and cobbles, brown.	SP5-3-4	0.0
		Damp				SP5-6-7	0.0
						SP5-8-9	0.0
10					Boring terminated at 9 feet (refusal). Groundwater not encountered.		
15					Boring abandoned with granular bentonite and patched with asphalt.		
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe.



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ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
Bellevue, Washington 98004

## BORING SP5

Former West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:	Date:	Logged by:	Plate:
JN-26192-2	09/12/06	RBR	A-1

# BORING SP6

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp			Asphalt pavement / gravel base.		
5		Damp		GP	Sandy-Gravel, gravel with medium to coarse sand, and cobbles, brown.	SP6-3-4	0.0
						SP6-6-7	0.0
10					Boring terminated at 7 feet (refusal). Groundwater not encountered. Boring abandoned with granular bentonite and patched with asphalt.		
15							
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe.



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ASSOCIATES, INC.**

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Bellevue, Washington 98004

## BORING SP6

Former West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:  
JN-26192-2

Date:  
09/12/06

Logged by:  
RBR

Plate:  
A-2

# BORING SP7

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp			Asphalt pavement / gravel base.		
5		Damp		GP	<u>Sandy-Gravel</u> , gravel with medium to coarse sand, and cobbles, brown.	SP7-3-4	0.0
					Slight odor (not distinguishable) at 7 feet	SP7-7-8	0.0
10					Boring terminated at 8 feet (refusal). Groundwater not encountered.		
15					Boring abandoned with granular bentonite and patched with asphalt.		
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strelaprobe.



**ENVIRONMENTAL  
ASSOCIATES, INC.**

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Bellevue, Washington 98004

## BORING SP7

Former West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:

JN-26192-2

Date:

09/12/06

Logged by:

RBR

Plate:

A-3



# BORING SP8

Depth / Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis -PID (ppm)
0		Damp		SP	Sand, fine to medium sand, with gravel, brown.		
5		Damp		GP	Sandy-Gravel, gravel with medium to coarse sand, and cobbles, brown.	SP8-3-4	0.0
						SP8-7-8	0.0
10					Boring terminated at 8 feet (refusal). Groundwater not encountered.		
15					Boring abandoned with granular bentonite and patched with asphalt.		
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Strataprobe.



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ASSOCIATES, INC.**

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Bellevue, Washington 98004

## BORING SP8

Former West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:

JN-26192-2

Date:

09/12/06

Logged by:

RBR

Plate:

A-4

# BORING SP9

Depth / Sample	Well Design	Moisture / Water Table	Blows / Foot	USCS	DESCRIPTION	Sample	Head Space Analysis - PID (ppm)
0		Damp		SP	Sand, fine to medium sand, organic, with gravel, dark-brown.		
5		Damp		GP	Sandy-Gravel, gravel with medium to coarse sand, and cobbles, brown.	SP9-3-4	0.0
10					Boring terminated at 8 feet (refusal). Groundwater not encountered.	SP9-7-8	0.0
15					Boring abandoned with granular bentonite and patched with asphalt.		
20							
25							
30							
35							
40							

Sampler: Continuous Sample collected in 4-foot sections.  
Driller: ESN-LAR Stralaprobe.



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
Bellevue, Washington 98004

## BORING SP9

Former West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:  
JN-26192-2

Date:  
09/12/06

Logged by:  
RBR

Plate:  
A-5

# LOG OF BORING SB-1

(Page 1 of 2)

Date/Time Started : 1-29-07/1040  
 Date/Time Completed : 1-29-07/1204  
 Total Boring Depth : 35'  
 Depth to water ATD : 24'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300



Site Name: West Coast Door Property  
 Client: William Swensen  
 Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0								
5	X	4.0 - 5.5 GRAVEL minor sand, trace silt (80% fine to coarse gravel, 15% fine to coarse sand, 5% silt), brown, moist.	GP		100	20/21/21	6.2	-
10	X	9.0 - 10.0 GRAVEL minor sand, trace silt (80% fine to coarse gravel, 15% fine to coarse sand, 5% silt), brown-gray, wet.	GP		100	14/15/19	16.2	SB1-9-10
15	X	14.0 - 15.5 SAND minor gravel, trace silt (85% fine to coarse sand, 10% fine to coarse gravel, 5% silt), brown, moist.	SP		100	34/30/19	0.0	-
20	X	19.0 - 19.5 SAND minor silt, trace gravel (85% fine to coarse sand, 10% silt, 5% coarse gravel), brown, moist. 19.5 - 20.5 Gravelly SAND trace silt (50% medium to coarse sand, 45% fine to coarse gravel, 5% silt), brown, moist.	SP SP		100	29-50/5"	70.2	SB1-19-20.5

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-1

(Page 1 of 2)

08-13-2008 \\Pacific-8e185afpublic\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\SB1.bo

# LOG OF BORING SB-1

(Page 2 of 2)



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Date/Time Started : 1-29-07/1040  
 Date/Time Completed : 1-29-07/1204  
 Total Boring Depth : 35'  
 Depth to water ATD : 24'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
20	X		SP		100	29-50/5"	70.2	SB1-19-20.5
25	X	24.0 - 25.5 Gravelly SAND trace silt (50% medium to coarse sand, 45% fine to coarse gravel, 5% silt), brown, wet.	SP		90	26-50/6"	2.6	-
30	X	29.0 - 30.5 SAND trace gravel, trace silt (90% fine to coarse sand, 5% fine gravel, 5% silt), brown, wet, assorted cobbles.	SP		100	50/6"	34.1	-
35	X	34.0 - 35.0 SAND with gravel (80% medium to coarse sand, 20% fine gravel), gray-brown, wet.	SP		100		22	SB1-34-GW
40								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-1

(Page 2 of 2)

08-13-2008 \\Pacific-8e185af\public\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\SB1.bo

# LOG OF BORING SB-2

(Page 1 of 2)



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Date/Time Started : 1-29-07/0818  
 Date/Time Completed : 1-29-07/1008  
 Total Boring Depth : 35'  
 Depth to water ATD : 20'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0								
4.0 - 5.5	X	GRAVEL with sand, trace silt (75% fine to coarse gravel, 20% fine to coarse sand, 5% silt), brown, dry.	GP		100	26/28/23	30.1	-
9.0 - 10.5	X	GRAVEL with sand, trace silt (75% fine to coarse gravel, 20% fine to coarse sand, 5% silt), brown, dry.	GP		10	50/6"	22.3	-
14.0 - 15.5	X	SAND minor silt (interbedded 100% coarse sand with 90% coarse sand, 10% silt), brown, moist.	SP		100	29-50/6"	24.6	SB2-14-15.5
19.0 - 20.5	X	SAND minor silt, trace gravel (85% medium to coarse sand, 10% silt, 5% fine to coarse gravel), brown, wet.	SP		100	36-50/6"	10.6	SB2-19-20.5

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-2

(Page 1 of 2)

08-13-2008 \\Pacific-8e185af\public\Project Files\112-Swensen\112-001 West Coast Door Property\Boring Logs\SB2.bo

# LOG OF BORING SB-2

(Page 2 of 2)

Date/Time Started : 1-29-07/0818  
 Date/Time Completed : 1-29-07/1008  
 Total Boring Depth : 35'  
 Depth to water ATD : 20'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300



Site Name: West Coast Door Property  
 Client: William Swensen  
 Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
20	X		SP		100	36-50/6"	10.6	SB2-19-20.5
25	X	24.0 - 25.0 SAND (100% fine to medium sand), brown, wet.	SP		100	35-50/6"	29.7	-
30	X	29.0 - 30.5 SAND trace gravel, trace silt (90% fine to coarse sand, 5% fine to coarse gravel, 5% silt), gray, wet.	SP		100	26-50/6"	107	-
35	X	34.0 - 35.0 GRAVEL minor sand, trace silt (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), gray, wet.	GP		100		15.1	SB2-34-GW
40								

08-13-2008 \\Pacific-8e185af\public\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\SB2.bo

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-2

(Page 2 of 2)

# LOG OF BORING SB-3

(Page 1 of 2)

Date/Time Started : 1-31-07/1141  
 Date/Time Completed : 1-31-07/1416  
 Total Boring Depth : 33'  
 Depth to water ATD : 25'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 140



Site Name: West Coast Door Property  
 Client: William Swensen  
 Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0		0.0 - 5.0 Soil cuttings are rounded cobbles with some sand and silt.	GP					
5								
10	X	10.0 - 11.5 SAND with silt, minor gravel (70% fine to medium sand, 20% silt, 10% coarse gravel), brown, dry, no odor.	SP		5	50/1"	49.2	SB3-10-11.5
15	X	15.0 - 16.5 GRAVEL minor sand, trace silt (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, moist, no odor.	GP		40	50/3"	35.7	SB3-15-16.5
20								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-3

(Page 1 of 2)

# LOG OF BORING SB-3

(Page 2 of 2)

Date/Time Started : 1-31-07/1141  
 Date/Time Completed : 1-31-07/1416  
 Total Boring Depth : 33'  
 Depth to water ATD : 25'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 140



Site Name: West Coast Door Property  
 Client: William Swensen  
 Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
20	X	20.0 - 21.5 NO RECOVERY.	-		0	50/1"	-	-
25	X	25.0 - 26.5 NO RECOVERY. Sampler is wet.	-		0	50/0"	-	-
		Soil cuttings are mostly cobbles with some sand and silt.						
30	X	30.0 - 31.5 NO RECOVERY.	-		0	50/1"	-	-
	X	33.0 - 34.5 GRAVEL with minor sand, minor silt (80% fine to coarse gravel, 10% fine to coarse sand, 10% silt), brown, wet, no odor.	GP		5	50/3"	96.6	SB3-33-GW
35								
40								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

LOG OF BORING SB-3

(Page 2 of 2)



# LOG OF BORING SB-4

(Page 1 of 2)

Date/Time Started : 5-11-07/0949  
 Date/Time Completed : 5-11-07/1135  
 Total Boring Depth : 35'  
 Depth to water ATD : 25'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0								
5	X	5.0 - 6.5 Sandy GRAVEL minor silt (65% fine to coarse gravel, 25% fine to coarse sand, 10% silt), brown, moist, no odor.	GP		60	50/6"	16.5	-
10	X	10.0 - 10.5 Silty SAND (70% fine to coarse sand, 30% silt), brown, moist, no odor.	SM		100	20/25/22	16.2	SB4-10-11.5
	X	10.5 - 11.5 SAND trace silt (95% fine to medium sand, 5% silt), brown, moist, no odor.	SP					
15	X	15.0 - 16.5 SAND with gravel with silt (70% fine to coarse sand, 20% fine to coarse gravel, 10% silt), brown, moist, no odor.	SP		90	41-50/6"	15.5	-
20								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-4

(Page 1 of 2)

08-13-2008 \\Pacific-8e185afpublic\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\SB4.bo

# LOG OF BORING SB-4

(Page 2 of 2)



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Date/Time Started : 5-11-07/0949  
 Date/Time Completed : 5-11-07/1135  
 Total Boring Depth : 35'  
 Depth to water ATD : 25'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18'  
 Drive Hammer (lbs) : 300

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
20	X	20.0 - 21.5 SAND with gravel with silt (70% fine to coarse sand, 20% fine to coarse gravel, 10% silt), brown, moist, no odor. Cobble at bottom of sampler.	SP		35	50/6"	30.6	SB4-21-21.5
25	X	25.0 - 25.75 SAND with gravel with silt (70% fine to coarse sand, 20% fine to coarse gravel, 10% silt), brown, moist, no odor.	SP		40	50/6"	27.0	-
	X	25.75 - 26.5 SAND trace silt (95% fine sand, 5% silt), brown, wet, no odor.	SP					
30	X	30.0 - 31.5 SAND trace silt (95% fine to medium sand, 5% silt), brown, wet, no odor. Cobble at the bottom of the sampler.	SP		35	50/6"	25.1	-
35	X	35.0 - 36.5 SAND (100% fine to medium sand), brown, wet, no odor.	SP		30	50/6"	21.2	SB4-35-GW
40								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-4

(Page 2 of 2)

# LOG OF BORING SB-5

(Page 1 of 2)

Date/Time Started : 5-11-07/1301  
 Date/Time Completed : 5-11-07/1425  
 Total Boring Depth : 35'  
 Depth to water ATD : 20'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0								
5	X	5.0 - 6.5 Sandy GRAVEL minor silt (70% fine to coarse gravel, 20% fine to coarse sand, 10% silt), brown, moist, no odor.	GP		80	17/18/21	34.5	-
10	X	10.0 - 10.5 Sandy GRAVEL minor silt (70% fine to coarse gravel, 20% fine to coarse sand, 10% silt), brown, moist, no odor. Large cobble.	SM		55	40-50/6"	35.8	-
	X	10.5 - 11.5 Silty SAND (70% fine sand, 30% silt), brown, moist, no odor.	SM					
15	X	15.0 - 15.5 Silty SAND minor gravel (60% fine to coarse sand, 30% silt, 10% fine gravel), brown, moist, no odor.	SM			46-50/2"	39.6	SB5-15-16.5
	X	15.5 - 16.5 SAND with gravel, trace silt (70% fine to coarse sand, 25% fine to coarse gravel, 5% silt), brown, moist, no odor.	SP					
20								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-5

(Page 1 of 2)

# LOG OF BORING SB-5

(Page 2 of 2)

Date/Time Started : 5-11-07/1301  
 Date/Time Completed : 5-11-07/1425  
 Total Boring Depth : 35'  
 Depth to water ATD : 20'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 300



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
20	X	20.0 - 21.5 Gravelly SAND minor silt (45% fine to coarse sand, 45% fine to coarse gravel, 10% silt), brown, wet, no odor.	SP		100	40-50/6"	36.6	-
25	X	25.0 - 25.5 Gravelly SAND minor silt (45% fine to coarse sand, 45% fine to coarse gravel, 10% silt), brown, wet, no odor. 25.5 - 26.5 Silty SAND trace silt (65% fine sand, 35% silt), brown, wet, no odor.	SP SM	 	100	29-50/6"	32.6	-
30	X	30.0 - 30.5 Gravelly SAND minor silt (45% fine to coarse sand, 45% fine to coarse gravel, 10% silt), brown, wet, no odor. 30.5 - 31.0 GRAVEL minor sand, minor silt (70% fine gravel, 15% fine to coarse sand, 15% silt), brown, wet, no odor.	SP GP	 	60	50/6"	42.2	-
35	X	35.0 - 36.5 Gravelly SAND trace silt (60% fine to coarse sand, 35% fine gravel, 5% silt), gray, wet, creosote odor.	SP		50	50/6"	43.8	SB5-35-36.5 SB5-35-GW
40								

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : James Goble  
 Equipment : CME  
 Pacific Crest Rep. : Annica Nord

## LOG OF BORING SB-5

(Page 2 of 2)

# LOG OF BORING SB-6

(Page 1 of 1)

Date/Time Started : 4-01-2009 / 8:18  
 Date/Time Completed : 4-01-2009 / 4:28  
 Total Boring Depth : 39 feet  
 Depth to water ATD : 20 feet  
 Elevation (ft) : NA  
 Drilling Method : Direct Push & HSA  
 Sampler Type : Macro-Core & piston sampler



Site Name: West Coast Door  
 Client: Swensen Enterprises, LLC

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Sample ID
0		No Sampling above 28 feet bgs. From auger cuttings: From Approximately 0 - 12: GRAVEL and coarse to medium sand	GP		-	-	SB6-22-RGW
10		From Auger Cuttings: From Approximately 12 -28: SAND trace silt, trace gravel (90% fine to medium grained sand, 5% silt, 5% gravel), medium brown, moist, no odor.	SP		-	-	
20					-	-	
28		28 -31.5 SAND (100% medium to coarse grained sand), light brown to medium gray, wet, no odor.	SP		100	0.0	SB6-37-RGW
31.5		31.5 - 32 SAND minor silt (85% fine sand, 15% silt), medium gray, wet, no odor.	SP				
32		32 - 32.5 SAND (100% fine sand) medium gray, wet, no odor.	SP				
32.5		32.5 - 35 Silty SAND (65% fine sand, 35% silt), medium gray, moist, no odor.	SM		100	0.1	SB6-37-RGW
35		35 - 39 Sandy SILT (60% SILT, 40% fine sand), medium gray, moist, no odor.	ML		100	0.3	
40		Bottom of Boring at 39 feet bgs					

Drilling Company : ESN Northwest  
 Drilling Foreman : Noel Knopf  
 Equipment : AMS Powerprobe 9630  
 Pacific Crest Rep. : Monty Busbee

## LOG OF BORING SB-6

(Page 1 of 1)

# LOG OF BORING SB-9

(Page 1 of 2)

Date/Time Started : 4-01-2009 / 8:45  
 Date/Time Completed : 4-02-2009 / 4:28  
 Total Boring Depth : 43 feet  
 Depth to water ATG : 24.13  
 Elevation (ft) : NA  
 Drilling Method : Direct Push  
 Sampler Type : screen-point groundwater  
 : Macro-core



Site Name: West Coast Door  
 Client: Swensen Enterprises, LLC

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Sample ID
0		0 - 4 Sandy GRAVEL with silt (50% gravel, 30% fine to coarse sand, 20% silt), light to dark gray, dry, no odor	GP-GM		70	0.0	SB9-32-RGW
		4 - 8 As above	GP-GM		80	0.0	
		8 - 12 As above	GP-GM		50	0.0	
10		12 - 12.5 SAND (100% coarse sand), medium brown, moist, no odor.					
		12.5 - 16 Sandy GRAVEL with silt (50% gravel, 30% fine to coarse sand, 20% silt), light to dark gray, moist, no odor.	GP-GM		60	0.0	
		16 - 19 As above.	GP-GM				
		19 - 20 SAND to Sandy Silty GRAVEL (Slough?) medium gray, moist, no odor.			100	0.0	
20		20 - 21 GRAVEL with sand to SAND (Slough *4 foot sampler filled from one foot of advancement).	GP-SM				
		21 - 22 As above.	GP-GP		100*	0.0	
		Broken probe rods and sampler. Advancing boring with hollow stem augers to 40 feet.			100*	0.0	
30					-	-	SB9-32-RGW

Drilling Company : ESN Northwest  
 Drilling Foreman : Noel Knopf  
 Equipment : AMS Powerprobe 9630  
 Pacific Crest Rep. : Monty Busbee

## LOG OF BORING SB-9

(Page 1 of 2)

# LOG OF BORING SB-9

(Page 2 of 2)

Date/Time Started : 4-01-2009 / 8:45  
 Date/Time Completed : 4-02-2009 / 4:28  
 Total Boring Depth : 43 feet  
 Depth to water ATG : 24.13  
 Elevation (ft) : NA  
 Drilling Method : Direct Push  
 Sampler Type : screen-point groundwater  
 : Macro-core



Site Name: West Coast Door  
 Client: Swensen Enterprises, LLC

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Sample ID
30					-	-	SB9-32-RGW
40		40 - 41 SAND (100% fine to coarse sand), medium gray, wet, VOC odor.					
		41 - 42 GRAVEL with sand (70% gravel, 30% fine to medium sand), medium gray, wet, VOC odor.	SP		100	4.6	
		42 - 43 Silty SAND (60% fine to medium sand, 40% silt), medium gray, wet, slight VOC odor.	GP				
		43 - 43.5 GRAVEL trace silt (95% gravel, 5% silt), medium gray, moist, VOC odor.	SM		100	3.1	SB9-43-RGW
		43.5 - 45 Silty SAND (60% fine to medium sand, 40% silt), medium gray, moist, VOC odor.	GM				
		45 - 45.5 SAND trace silt (95% fine to medium sand, 5% silt), medium gray, moist, VOC odor.	SM		100	-	
		45.5 - 49 Silty SAND (60% fine to medium sand, 40% silt), medium gray, moist, VOC odor.	SP				
50		Bottom of Boring at 49 feet bgs					
60							

Drilling Company : ESN Northwest  
 Drilling Foreman : Noel Knopf  
 Equipment : AMS Powerprobe 9630  
 Pacific Crest Rep. : Monty Busbee

LOG OF BORING SB-9

(Page 2 of 2)

**Coordinate System:** NAD83/98

**Ground Surf Elev. and Datum:** 245.9 NGVD 29

**Latitude/Northing:** 697992.86

**Longitude/Easting:** 1149534.32

**Boring Location:**

**Drill Date:** June 11, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 24

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Task:**

**Address:** 3133 Cedar St,  
Tacoma, WA.

**Remarks:** Boring backfilled with bentonite chips to 5 feet bgs, then concrete patched.

PID (ppm)	SAMPLE ID	BLOW COUNT	DRIVEN / RECOVERED	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS
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0.0		50/6"			Concrete	Concrete with underlying pea gravel at surface.
0.0	SP2B-5.0	50/3"			GW-GM	Very dark brown and black, well graded rounded GRAVEL with sand (20 to 35%), silt (10%), moist, no odor (FILL).
0.0		50/3"			SW	Very dark brown, well graded fine to coarse SAND, fine and coarse gravel (15%), silt (5%). Moist, no odor; trace silver, waxy sheen.
0.0		50/4"				Same as above. Slight oily odor, moist, trace silver sheen.
0.0		50/4"				Same as above. Gravel (30 to 40%). No odor, no sheen. Possible fill.
0.0		50/4"			GW-GM	Dark grayish brown well graded fine and coarse GRAVEL with sand (20 to 30%), silt (10%), moist to wet, no odor, trace silver sheen.
0.2	SP2B-15.0	50/6"			SP	Dark brown poorly graded fine SAND with rounded gravel (20 to 30%), silt (<5%), moist, slight oily odor and trace silver sheen and paraffin floaters.
0.1		50/6"			SW	Dark brown well graded fine to coarse SAND with fine and coarse gravel, silt (<5%), moist, no odor, colorless oily sheen.

**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

--- Dashed contact line in soil description indicates a gradational contact  
USCS = Unified Soil Classification System  
= denotes groundwater table



**Coordinate System:** NAD83/98

**Ground Surf Elev. and Datum:** 245.9 NGVD 29

**Latitude/Northing:** 697992.86

**Longitude/Easting:** 1149534.32

**Boring Location:**

**Drill Date:** June 11, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 24

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Task:**

**Address:** 3133 Cedar St,  
Tacoma, WA.

**Remarks:** Boring backfilled with bentonite chips to 5 feet bgs, then concrete patched.

PID (ppm)	SAMPLE ID	BLOW COUNT	DRIVEN / RECOVERED	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS
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0.0		75/5"			SP-SM	Dark brown poorly graded fine SAND with fine and coarse gravel (~30%), silt (5 to 10%), moist, no odor, trace silver sheen.
0.3		50/5"			SP	Dark brown grading down to gray with bluish-gray mottles, poorly graded fine SAND with gravel (15 to 25%), silt (<5%), moist to wet, no odor, trace silver sheen.
7.6	SP2B-25.0	50/6"				Same as above. No gravel. Sand coarsening with depth. Strong naphthalene odor, no sheen.
15.8		50/6"				Same as above. Strong naphthalene odor, sheen test yields foamy water but no sheen.
94	SP2B-30.0	50/6"				Same as above. Strong naphthalene odor, strong rainbow sheen.
136		50/6"			SW	Gray, well graded SAND, gravel (5%), silt (<5%). Strong naphthalene odor, sheen on soil. Heaving sand in sampler.
74	SP2B-35.0					Same as above. Gravel (15 to 20%).
99		50/6"			SP	Gray, poorly graded fine and medium SAND (10% coarse), no gravel, silt (<5%), wet, strong naphthalene odor, sheen on soil.

**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

--- Dashed contact line in soil description indicates a gradational contact  
USCS = Unified Soil Classification System  
= denotes groundwater table

**Coordinate System:** NAD83/98

**Ground Surf Elev. and Datum:** 245.9 NGVD 29

**Latitude/Northing:** 697992.86

**Longitude/Easting:** 1149534.32

**Boring Location:**

**Drill Date:** June 11, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 24

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Task:**

**Address:** 3133 Cedar St,  
Tacoma, WA.

**Remarks:** Boring backfilled with bentonite chips to 5 feet bgs, then concrete patched.

PID (ppm)	SAMPLE ID	BLOW COUNT	DRIVEN / RECOVERED	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS
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3.0	SP2B-42.0	100/6"			SP	No recovery at 40' bgs and driller reports heaving stops, suggesting possible silt layer.  Same as above, slight naphthalene odor.
0.9	SP2B-45.0	50/6"			SW	Gray well graded SAND with fine and coarse gravel, looks like sample of soil heaved into auger, slight naphthalene odor, wet.

**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

--- Dashed contact line in soil description indicates a gradational contact  
USCS = Unified Soil Classification System  
= denotes groundwater table

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: <b>SB-40</b>	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse north of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 698011.38	EASTING: 1149553.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 75	DEPTH TO WATER (ft bgs): 34	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/1/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
0		6" of <b>CONCRETE</b> .			
		Gray-brown, well-graded <b>SAND</b> with gravel and little silt, dry to moist, no odor.			
		At 2 feet bgs, becomes brown.		0.2	
		At 2.5 feet bgs, becomes dark brown			
4					
		At 5 feet bgs, becomes light gray-brown and dry.			
	SW	At 6.5 feet bgs, cobbles up to 4" diameter present. No odor.		0.0	
8					
12					
	GW	Well-graded <b>GRAVEL</b> with cobbles and brown silty sand, moist.		0.0	
		Poorly-graded <b>SAND</b> with gravel and silt, no odor.			
	SP-SM				
		Brown, well-graded <b>SAND</b> gravel and trace silt, moist, no odor.			
16				0.0	
		At 18 feet bgs, silt content increases slightly. No odor.			
	SW				
20				0.0	

ABBREVIATIONS:		NOTES:
ft bgs = feet below ground surface	USCS = Unified Soil Classification System	Recovered intervals evenly decompressed for log unless otherwise noted.
ppm = parts per million	▼ = denotes groundwater table	

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: <b>SB-40</b>	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse north of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 698011.38	EASTING: 1149553.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 75	DEPTH TO WATER (ft bgs): 34	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/1/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
20					
	SM	Silty <b>SAND</b> with fine gravel, no odor.		0.0	
24	SW	Well-graded <b>SAND</b> with gravel and trace silt, moist, no odor.		0.0	
				0.0	
28		Gray-brown poorly-graded medium <b>SAND</b> with trace fine gravel, moist to wet, no odor. At 27.5 feet bgs, slight creosote odor present.		0.2	
	SP	From 29.5-30 feet bgs, slight silver staining present and discontinuous brown film in sheen test. At 30 feet bgs, moderate creosote odor present. Light rainbow sheen and brown film in sheen test.			SB-40-29.5-30
32				0.7	SB-40-31.5-32
	SW	Well-graded <b>SAND</b> with large rounded cobbles, wet. Slight creosote odor and slight brown film in sheen test. At 35 feet, no odor and no sheen.		1.2	
36	SM	Gray-brown fine silty <b>SAND</b> , moderate creosote odor and slight sheen.		0.7	
	SP	Gray-brown poorly-graded fine <b>SAND</b> , no odor or sheen.		0.0	
40					SB-40-39-39.5
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

**PROJECT:**  
West Coast Door

**LOCATION:** 3102 S Cedar  
St, Tacoma WA

**BORING ID:**  
**SB-40**

**LOGGED BY:**  
K. Anderson

**BORING LOCATION:**  
Site property warehouse north of former retort

**DRILLED BY:**  
Zack Bailey, Holocene Drilling

**NORTHING:**  
698011.38

**EASTING:**  
1149553.06

**DRILLING EQUIPMENT:**  
Sonic LAR

**SURFACE  
ELEVATION:** 252.1

**COORDINATE SYSTEM:**  
NAVD88

**DRILLING METHOD:**  
5' x 4" Rods

**TOTAL DEPTH (ft bgs):**  
75

**DEPTH TO WATER (ft bgs):**  
34

**SAMPLING METHOD/SAMPLER LENGTH:**  
4" Liner Bag

**BORING DIAMETER:**  
4" inner/6" outer

**DRILL DATE:**  
10/1/2018

Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
40					
		Well-graded <b>SAND</b> with silt and gravel, no odor or sheen.		0.0	
	SW-SM				
		Dark gray poorly-graded medium <b>SAND</b> with fine rounded gravel and trace silt, no odor or sheen.		0.0	
44					
	SP				
				0.0	
48		Gray, very firm <b>SILT</b> , slightly moist.			
	ML				
		Well-graded silty <b>SAND</b> , no odor.		0.0	
	SM				
		Well-graded <b>GRAVEL</b> with trace sand and silt, no odor.			
	GW				
52		Brown, well-graded <b>SAND</b> with silt and gravel, moist to wet, no odor or sheen.		0.0	
	SW-SM				
		Brown, well-graded <b>GRAVEL</b> with trace sand and silt, wet, no odor.			
56					
	GW				
		Brown, well-graded <b>SAND</b> with gravel and trace silt, no odor.		0.0	
60					

**ABBREVIATIONS:**  
ft bgs = feet below ground surface    USCS = Unified Soil Classification System  
ppm = parts per million                      ▼ = denotes groundwater table

**NOTES:**  
Recovered intervals evenly decompressed for log unless otherwise noted.

**PROJECT:**  
West Coast Door

**LOCATION:** 3102 S Cedar  
St, Tacoma WA

**BORING ID:**  
**SB-40**

**LOGGED BY:**  
K. Anderson

**BORING LOCATION:**  
Site property warehouse north of former retort

**DRILLED BY:**  
Zack Bailey, Holocene Drilling

**NORTHING:**  
698011.38

**EASTING:**  
1149553.06

**DRILLING EQUIPMENT:**  
Sonic LAR

**SURFACE  
ELEVATION:** 252.1

**COORDINATE SYSTEM:**  
NAVD88

**DRILLING METHOD:**  
5' x 4" Rods

**TOTAL DEPTH (ft bgs):**  
75

**DEPTH TO WATER (ft bgs):**  
34

**SAMPLING METHOD/SAMPLER LENGTH:**  
4" Liner Bag

**BORING DIAMETER:**  
4" inner/6" outer

**DRILL DATE:**  
10/1/2018

Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
64	SW			0.0	
68	SW-SM	Brown, well-graded <b>SAND</b> with silt and gravel, wet, no odor.		0.0	SB-40-68-69
72	ML	Lens of large cobbles underlain by gray-brown, firm sandy <b>SILT</b>			
76		Bottom of boring = 75 feet bgs.			

**ABBREVIATIONS:**  
ft bgs = feet below ground surface    USCS = Unified Soil Classification System  
ppm = parts per million                ▼ = denotes groundwater table

**NOTES:**  
Recovered intervals evenly decompressed for log unless otherwise noted.

<b>FLOYD   SNIDER</b> strategy ▪ science ▪ engineering		<b>PROJECT:</b> West Coast Door	<b>LOCATION:</b> 3102 S Cedar St, Tacoma WA	<b>BORING ID:</b> <b>SB-41</b>	
		<b>LOGGED BY:</b> K. Anderson	<b>BORING LOCATION:</b> Site property warehouse east of former retort		
<b>DRILLED BY:</b> Zack Bailey, Holocene Drilling		<b>NORTHING:</b> 697981.38	<b>EASTING:</b> 1149583.06		
<b>DRILLING EQUIPMENT:</b> Sonic LAR		<b>SURFACE ELEVATION:</b> 252.1	<b>COORDINATE SYSTEM:</b> NAVD88		
<b>DRILLING METHOD:</b> 5' x 4" Rods		<b>TOTAL DEPTH (ft bgs):</b> 85	<b>DEPTH TO WATER (ft bgs):</b> 31		
<b>SAMPLING METHOD/SAMPLER LENGTH:</b> 4" Liner Bag		<b>BORING DIAMETER:</b> 4" inner/6" outer	<b>DRILL DATE:</b> 10/2/2018		
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/Recovery	PID (ppm)	Sample ID
0		6" of <b>CONCRETE</b> .		0.0	
	GP	Rounded <b>GRAVEL</b> .			
	SW	Gray-brown, well-graded <b>SAND</b> with small rounded gravel and little silt, dry to moist, no odor.			
4		Black-brown, well-graded <b>SAND</b> with silt and wood fragments. Slight creosote odor.		0.0	SB-41-4-5
	SW-SM	At 5 feet bgs, no wood fragments or odor present.			
8				0.0	
	SP	Brown, poorly-graded medium <b>SAND</b> , slight musty odor. At 10.5 feet bgs, becomes light brown.			
12		At 11.5 feet bgs, 2" lense of dark brown sand.			
		Brown, well-graded <b>SAND</b> with silt and gravel, moist, no odor or sheen.		0.0	
16					
20					

**ABBREVIATIONS:**  
ft bgs = feet below ground surface  
ppm = parts per million

**USCS = Unified Soil Classification System**  
▼ = denotes groundwater table

**NOTES:**  
Recovered intervals evenly decompressed for log unless otherwise noted.



FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: SB-41	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse east of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697981.38	EASTING: 1149583.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 85	DEPTH TO WATER (ft bgs): 31	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/2/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	Drive/Recovery	PID (ppm)	Sample ID
20	SW-SM	At 21.5 feet bgs, becomes gray with slight odor. Odor increases with depth. No sheen.  At 24.5 feet bgs, moderate odor present and brown oily droplets and light rainbow sheen in sheen test. At 25 feet bgs, trace brown oily film and sheen present in sheen test.		1.1	
24				0.6	SB-41-24-25
				2.3	SB-41-25.5-26
28				0.0	
	SP	Brown, poorly-graded fine SAND, moist. No sheen or odor.		0.0	SB-41-28.5-29
				0.0	
32	SM	Gray silty SAND, wet, no odor.			
	SW-SM	Gray, well-graded SAND with silt and gravel, wet, no odor or sheen.		0.0	
				0.0	
36	SP	Gray, poorly-graded fine SAND, wet. Slight crosote odor on water. No sheen.			
		At 38 feet bgs, large gravels present. No odor or sheen.		0.0	
40		Gray, poorly-graded fine SAND with silt. No odor or sheen.			
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

<b>FLOYD   SNIDER</b> strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: <b>SB-41</b>	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse east of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697981.38	EASTING: 1149583.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 85	DEPTH TO WATER (ft bgs): 31	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/2/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
40	SP-SM			0.0	
				0.0	
44	SW-SM	Gray-brown, well-graded <b>SAND</b> with silt and gravel, wet, no odor or sheen.		0.0	
				0.0	
48	SW	Gray-brown, well-graded <b>SAND</b> with little silt, no odor or sheen.		0.0	SB-41-49-50
	ML	Gray, very firm <b>SILT</b> , slightly moist.			
52	GW	Gray-brown, well graded sandy <b>GRAVEL</b> with little silt, moist, no odor.		0.0	
				0.0	
	SW	Gray-brown, well graded gravelly <b>SAND</b> , moist.			
	GW-GM	Gray-brown, well-graded sandy <b>GRAVEL</b> with silt, moist, no odor.			
56					
	SW-SM	Gray-brown, well-graded gravelly <b>SAND</b> with silt, wet, no odor.		0.0	
60					
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                      ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

**PROJECT:**  
West Coast Door

**LOCATION:** 3102 S Cedar  
St, Tacoma WA

**BORING ID:**  
**SB-41**

**LOGGED BY:**  
K. Anderson

**BORING LOCATION:**  
Site property warehouse east of former retort

**DRILLED BY:**  
Zack Bailey, Holocene Drilling

**NORTHING:**  
697981.38

**EASTING:**  
1149583.06

**DRILLING EQUIPMENT:**  
Sonic LAR

**SURFACE  
ELEVATION:** 252.1

**COORDINATE SYSTEM:**  
NAVD88

**DRILLING METHOD:**  
5' x 4" Rods

**TOTAL DEPTH (ft bgs):**  
85

**DEPTH TO WATER (ft bgs):**  
31

**SAMPLING METHOD/SAMPLER LENGTH:**  
4" Liner Bag




**BORING DIAMETER:**  
4" inner/6" outer

**DRILL DATE:**  
10/2/2018

Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
	GW	Gray-brown, well-graded <b>GRAVEL</b> , no odor.			
		Gray-brown, well-graded gravelly <b>SAND</b> with silt, wet, no odor.			
	SW-SM			0.0	
64	SM	Gray-brown, well-graded silty <b>SAND</b> no odor.			
		Gray-brown, well-graded gravelly <b>SAND</b> with silt, wet, no odor.		0.0	
68	SW-SM				
72		Gray-brown, poorly-graded medium <b>SAND</b> , no odor.		0.0	
76	SM			0.0	
80					

**ABBREVIATIONS:**  
ft bgs = feet below ground surface    USCS = Unified Soil Classification System  
ppm = parts per million                      ▼ = denotes groundwater table

**NOTES:**  
Recovered intervals evenly decompressed for log unless otherwise noted.

<div>FLOYD   SNIDER</div> <div>strategy ▪ science ▪ engineering</div>		PROJECT: West Coast Door		LOCATION: 3102 S Cedar St, Tacoma WA		BORING ID: <b>SB-41</b>		
		LOGGED BY: K. Anderson		BORING LOCATION: Site property warehouse east of former retort				
DRILLED BY: Zack Bailey, Holocene Drilling				NORTHING: 697981.38		EASTING: 1149583.06		
DRILLING EQUIPMENT: Sonic LAR				SURFACE ELEVATION: 252.1		COORDINATE SYSTEM: NAVD88		
DRILLING METHOD: 5' x 4" Rods				TOTAL DEPTH (ft bgs): 85		DEPTH TO WATER (ft bgs): 31		
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag				BORING DIAMETER: 4" inner/6" outer		DRILL DATE: 10/2/2018		
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)			Drive/ Recovery		PID (ppm)	Sample ID
84							0.0	
	 SW	Gray-brown, well-graded <b>SAND</b> with gravel, no odor.						
		Bottom of boring = 85 feet bgs.						
<div>ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table</div> <div>NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.</div>								

<b>FLOYD   SNIDER</b> strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: <b>SB-42</b>	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse south of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697951.38	EASTING: 1149553.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 80	DEPTH TO WATER (ft bgs): 32	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/3/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/Recovery	PID (ppm)	Sample ID
0		6" of <b>CONCRETE</b> .			
	GP	6" of rounded <b>GRAVEL</b> .			
		Brown, well-graded <b>SAND</b> with silt and gravel, dry.			
		At 3 feet bgs, becomes dark brown. No odor.		0.0	
4					
		At 5 feet bgs, becomes light brown and dry. No odor.		0.0	
8					
12	SW-SM			0.0	
16					
		At 17.5 feet bgs, becomes moist. No odor.			
20		At 20 feet bgs, becomes dry.			
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                    ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: <b>SB-42</b>	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse south of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697951.38	EASTING: 1149553.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 80	DEPTH TO WATER (ft bgs): 32	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/3/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/Recovery	PID (ppm)	Sample ID
20		At 22 feet bgs, becomes moist. No odor.		0.0	
24		Gray-brown, poorly-graded medium <b>SAND</b> with little silt, no odor.			
		Gray-brown, well-graded <b>SAND</b> with silt and gravel, moderate creosote odor. Light rainbow sheet and slight brown film in sheen test.		1.6	SB-42-25.5-26
28		Gray-brown, poorly-graded medium <b>SAND</b> , no odor or sheen.			
				0.1	SB-42-29-30
32		Gray-brown, well-graded <b>SAND</b> with abundant gravel and silt, no odor.			
				0.0	
		Poorly graded <b>GRAVEL</b> .			
		Gray-brown, well-graded <b>SAND</b> with abundant gravel and silt, moist to wet, no odor.		0.1	
36		Gray-brown, well-graded <b>SAND</b> with gravel and trace silt, moist to wet, no odor.			
40					
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                      ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

**PROJECT:**  
West Coast Door

**LOCATION:** 3102 S Cedar  
St, Tacoma WA

**BORING ID:**  
**SB-42**

**LOGGED BY:**  
K. Anderson

**BORING LOCATION:**  
Site property warehouse south of former retort

**DRILLED BY:**  
Zack Bailey, Holocene Drilling

**NORTHING:**  
697951.38

**EASTING:**  
1149553.06

**DRILLING EQUIPMENT:**  
Sonic LAR

**SURFACE  
ELEVATION:** 252.1

**COORDINATE SYSTEM:**  
NAVD88

**DRILLING METHOD:**  
5' x 4" Rods

**TOTAL DEPTH (ft bgs):**  
80

**DEPTH TO WATER (ft bgs):**  
32

**SAMPLING METHOD/SAMPLER LENGTH:**  
4" Liner Bag

**BORING DIAMETER:**  
4" inner/6" outer

**DRILL DATE:**  
10/3/2018

Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
40					
		Gray, poorly-graded medium <b>SAND</b> , wet, no odor.		0.0	
44	SP	At 44.5 feet bgs, sand becomes coarse.		0.0	
	SM	Gray, poorly-graded coarse silty <b>SAND</b> , wet, no odor.		0.0	
	Wood	Wood branch.			
	SM	Gray, poorly-graded coarse silty <b>SAND</b> , wet, no odor.			
48	ML	Gray, firm sandy <b>SILT</b> , slightly moist, no odor.		0.0	
		Gray-brown, poorly-graded fine <b>SAND</b> , moist, no odor.		0.0	
52	SP			0.0	
		Gray-brown, well-graded gravelly <b>SAND</b> with silt, wet, no odor.		0.0	
56				0.0	
60		At 60 feet bgs, silt content increases.			

**ABBREVIATIONS:**

ft bgs = feet below ground surface    USCS = Unified Soil Classification System  
ppm = parts per million                      ▼ = denotes groundwater table

**NOTES:**

Recovered intervals evenly decompressed for log unless otherwise noted.



**PROJECT:**  
West Coast Door

**LOCATION:** 3102 S Cedar  
St, Tacoma WA

**BORING ID:**  
**SB-42**

**LOGGED BY:**  
K. Anderson

**BORING LOCATION:**  
Site property warehouse south of former retort

**DRILLED BY:**  
Zack Bailey, Holocene Drilling

**NORTHING:**  
697951.38

**EASTING:**  
1149553.06

**DRILLING EQUIPMENT:**  
Sonic LAR

**SURFACE  
ELEVATION:** 252.1

**COORDINATE SYSTEM:**  
NAVD88

**DRILLING METHOD:**  
5' x 4" Rods

**TOTAL DEPTH (ft bgs):**  
80

**DEPTH TO WATER (ft bgs):**  
32

**SAMPLING METHOD/SAMPLER LENGTH:**  
4" Liner Bag

**BORING DIAMETER:**  
4" inner/6" outer

**DRILL DATE:**  
10/3/2018

Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
64	SW-SM			0.0	
				0.0	
68				0.0	
		At 70 feet bgs, silt content increases with depth.		0.0	
72	ML	Gray, hard sandy <b>SILT</b> with rounded gravel, dry to slightly moist.		0.0	
		Gray-brown, well-graded <b>SAND</b> with trace to little silt, wet, no odor.		0.0	
		At 75 feet bgs, sand coarsens with depth.			
76	SW				
80		Bottom of boring = 80 feet bgs.			

**ABBREVIATIONS:**  
ft bgs = feet below ground surface    USCS = Unified Soil Classification System  
ppm = parts per million                      ▼ = denotes groundwater table

**NOTES:**  
Recovered intervals evenly decompressed for log unless otherwise noted.

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: SB-43	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse west of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697981.38	EASTING: 1149523.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 80	DEPTH TO WATER (ft bgs): 32	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/4/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	Drive/Recovery	PID (ppm)	Sample ID
0		6" of CONCRETE.			
		Dark brown, well-graded SAND with silt and gravel, moist, no odor. Brick fragments from 0.5 to 2.5 feet bgs.		0.0	
		At 2.5 feet bgs, drilled through concrete.			
4					
				0.0	
	SW-SM	At 7 feet bgs, gravel content increases.			
8		At 8.5 feet bgs, becomes brown and moist.		0.0	
				0.0	
12					
	SP	Brown, poorly-graded medium SAND with few fine rounded gavel, dry to slightly moist, no odor.		0.0	
16	SW-SM	At 15 feet bgs, very fine and dry powdery material, then brown, well-graded SAND with silt and gravel, moist.		0.0	
	SP	Gray-brown, poorly-graded medium SAND with gravel, moist.		0.0	
20	SP-SM	Gray-brown, poorly-graded fine SAND with silt, moist, no odor.			
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                    ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: <b>SB-43</b>	
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse west of former retort		
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697981.38	EASTING: 1149523.06	
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 80	DEPTH TO WATER (ft bgs): 32	
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/4/2018	
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
20	SW-SM	Brown, well-graded <b>SAND</b> with silt and gravel, moist.		0.0	
		Gray-brown, poorly-graded fine <b>SAND</b> with silt, moist, no odor.			
	SP-SM	At 22.5 feet bgs, becomes gray with a slight odor. No sheen.		0.0	
24					
	SW-SM	Gray, well-graded <b>SAND</b> with silt and gravel, moist, creosote odor. Slight rainbow sheen and clear oily film in sheen test, no oily product.		2.5	
	SP-SM	Gray, poorly-graded fine <b>SAND</b> , creosote odor. Trace rainbow sheen and film and trace oily product.		12.9	SB-43-28.5-29
28					
		At 30 feet bgs, becomes light brown and rainbow sheen.		394.0	SB-43-31-31.5
32	SW-SM	Gray, well-graded gravelly <b>SAND</b> with silt, moist to wet. Rainbow sheen and trace brown oily film.		35.0	
	SW	Gray, well-graded gravelly <b>SAND</b> with trace to little silt, light to moderate odor.		1.9	
36					
	SP	Gray, poorly-graded medium <b>SAND</b> , moist, moderate odor. Light rainbow sheen and brown oily film.		13.3	SB-43-37.5-38
40					
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

**PROJECT:**  
West Coast Door

**LOCATION:** 3102 S Cedar  
St, Tacoma WA

**BORING ID:**  
**SB-43**

**LOGGED BY:**  
K. Anderson

**BORING LOCATION:**  
Site property warehouse west of former retort

**DRILLED BY:**  
Zack Bailey, Holocene Drilling

**NORTHING:**  
697981.38

**EASTING:**  
1149523.06

**DRILLING EQUIPMENT:**  
Sonic LAR

**SURFACE  
ELEVATION:** 252.1

**COORDINATE SYSTEM:**  
NAVD88

**DRILLING METHOD:**  
5' x 4" Rods

**TOTAL DEPTH (ft bgs):**  
80

**DEPTH TO WATER (ft bgs):**  
32

**SAMPLING METHOD/SAMPLER LENGTH:**  
4" Liner Bag

**BORING DIAMETER:**  
4" inner/6" outer

**DRILL DATE:**  
10/4/2018

Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, <b>MAJOR CONSTITUENT</b> , odor, staining, sheen, debris, etc.)	Drive/ Recovery	PID (ppm)	Sample ID
40		Gray, well-graded <b>SAND</b> with silt and gravel, wet, no odor.		0.1	
		At 42 feet bgs, silt content increases and sand coarsens with depth.			SB-43-41-41.5
44	SW			0.1	
				0.1	
48	ML	Gray, firm <b>SILT</b> , no odor.		0.0	SB-43-47-47.5
	SP	Gray, well-graded very fine <b>SAND</b> , moist to wet.			
		Gray, well-graded <b>SAND</b> with silt and gravel, wet, no odor.			
52		At 51 feet bgs, becomes wet.		0.0	
56		At 55 feet bgs, becomes gray-brown.			
		At 57 feet bgs, becomes brown.		0.0	
60	SW SM	At 60 feet bgs, becomes dense and silt content increases.			

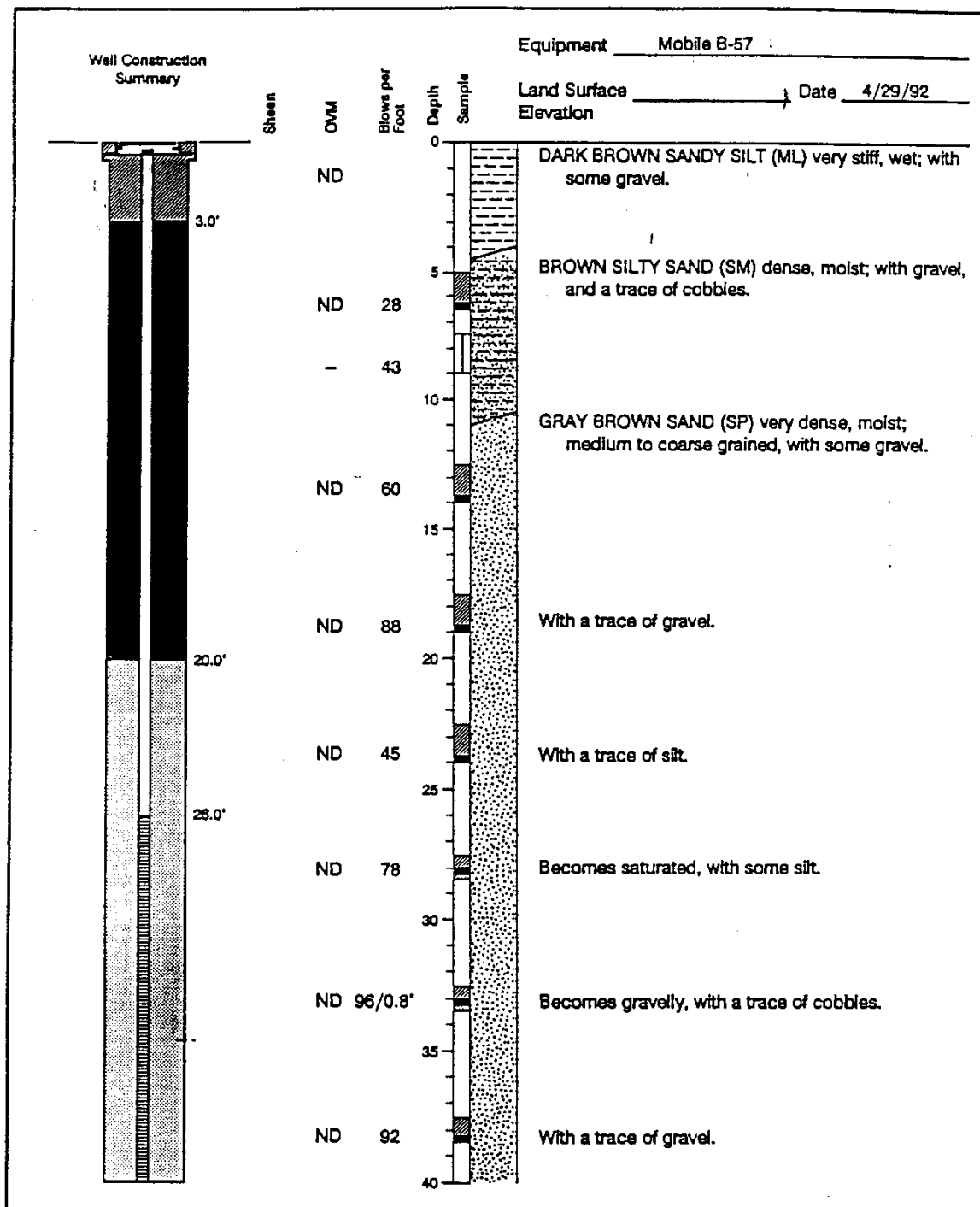
**ABBREVIATIONS:**

ft bgs = feet below ground surface    USCS = Unified Soil Classification System  
ppm = parts per million                      ▼ = denotes groundwater table

**NOTES:**

Recovered intervals evenly decompressed for log unless otherwise noted.

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	BORING ID: SB-43		
		LOGGED BY: K. Anderson	BORING LOCATION: Site property warehouse west of former retort			
DRILLED BY: Zack Bailey, Holocene Drilling			NORTHING: 697981.38	EASTING: 1149523.06		
DRILLING EQUIPMENT: Sonic LAR			SURFACE ELEVATION: 252.1	COORDINATE SYSTEM: NAVD88		
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 80	DEPTH TO WATER (ft bgs): 32		
SAMPLING METHOD/SAMPLER LENGTH: 4" Liner Bag			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/4/2018		
Depth (feet)	USCS Symbol	Soil Description and Observations (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	Drive/ Recovery		PID (ppm)	Sample ID
64	SP	At 65.5 feet bgs, silt content decreases.			0.0	SB-43-71-71.5
68					0.0	
		Gray-brown, very fine poorly-graded SAND, moist to wet, no odor.			0.0	
72	SM	Gray-brown, dense silty SAND with fine rounded gravel, slightly moist.			0.0	
76	ML	Gray, hard sandy SILT with gravel, dry to slightly moist, no odor.			0.0	
80	SM	Gray, silty SAND. Bottom of boring = 80 feet bgs.				
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.			



Applied Geotechnology Inc.  
Geotechnical Engineering  
Geology & Hydrogeology

Log of Monitoring Well 1 (0-40')  
Puget Sound National Bank/West Coast Door - Phase II  
Tacoma, Washington

PLATE  
**3a**

JOB NUMBER  
15,536.003

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SES

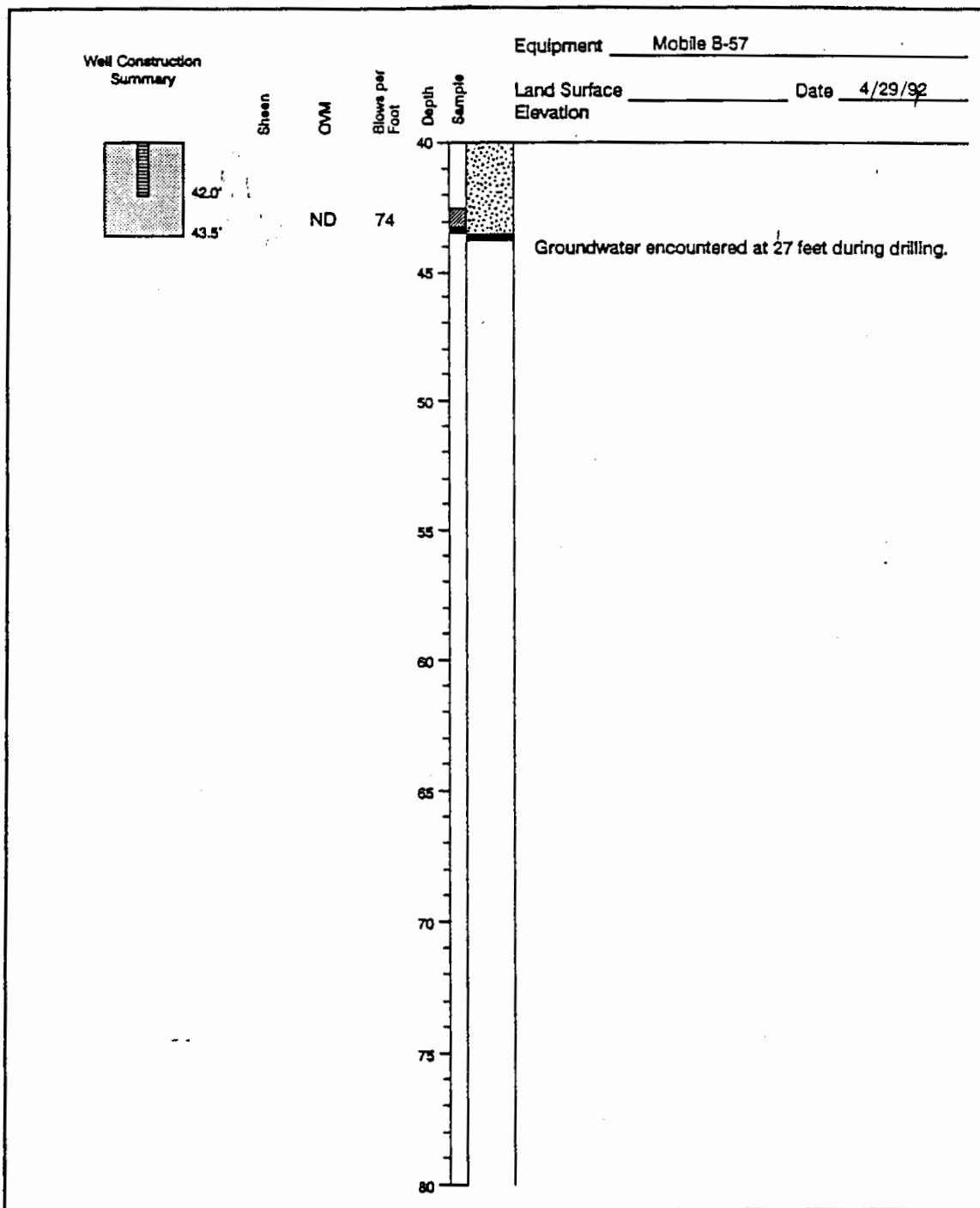
APPROVED  
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DATE  
18 Jun 92

REVISED

DATE

KB 01149



Applied Geotechnology Inc.  
Geotechnical Engineering  
Geology & Hydrogeology

Log of Monitoring Well 1 (40-43.5')  
Puget Sound National Bank/West Coast Door - Phase II  
Tacoma, Washington

PLATE

3b

PLATE

4b

JOB NUMBER  
15,536.003

DRAWN  
SES

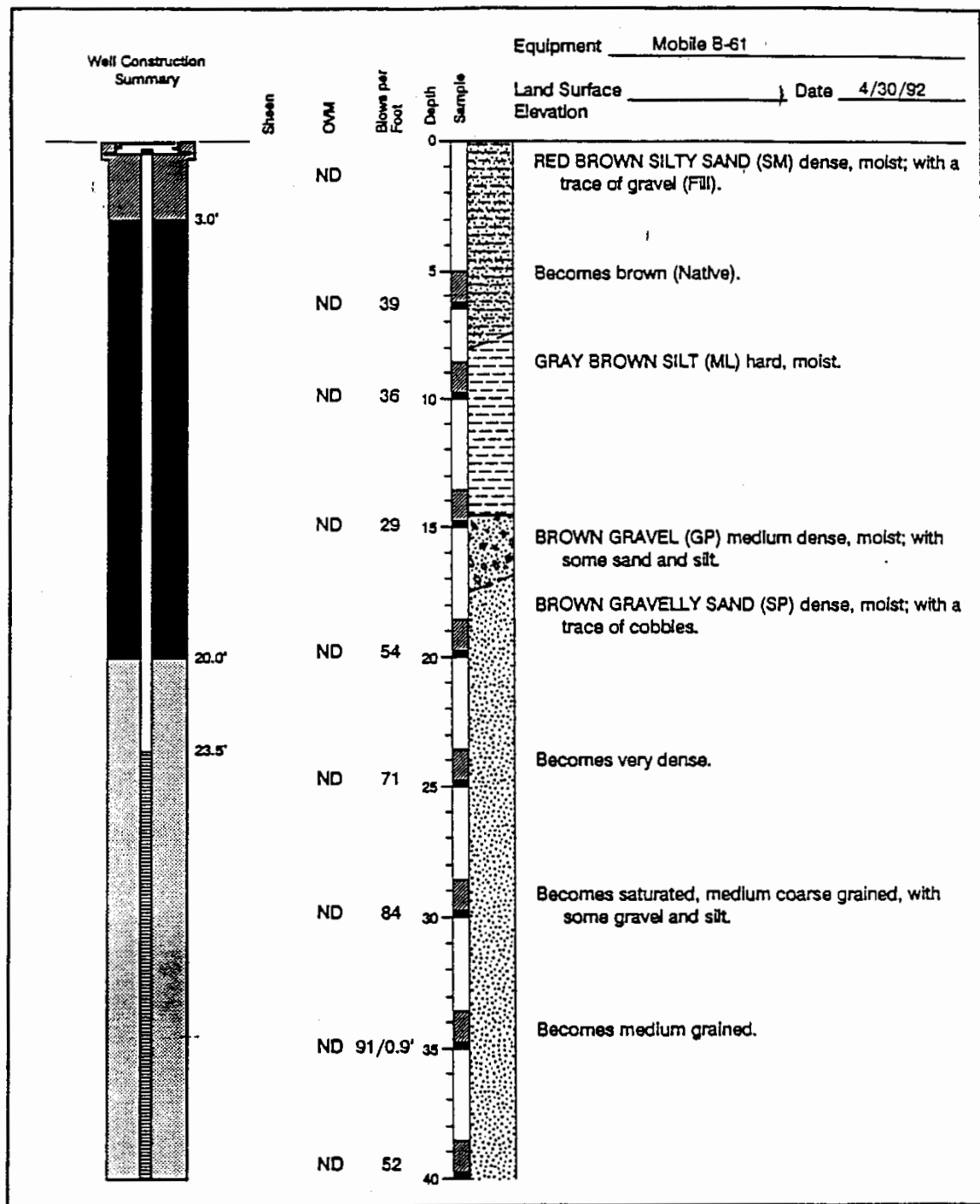
APPROVED  
*[Signature]*

DATE  
18 Jun 92

REVISED

DATE

KB 01150



Applied Geotechnology Inc.  
Geotechnical Engineering  
Geology & Hydrogeology

Log of Monitoring Well 3 (0-40')  
Puget Sound National Bank/West Coast Door - Phase II  
Tacoma, Washington

PLATE

5a

JOB NUMBER  
15,536.003

DRAWN  
SES

APPROVED  
*[Signature]*

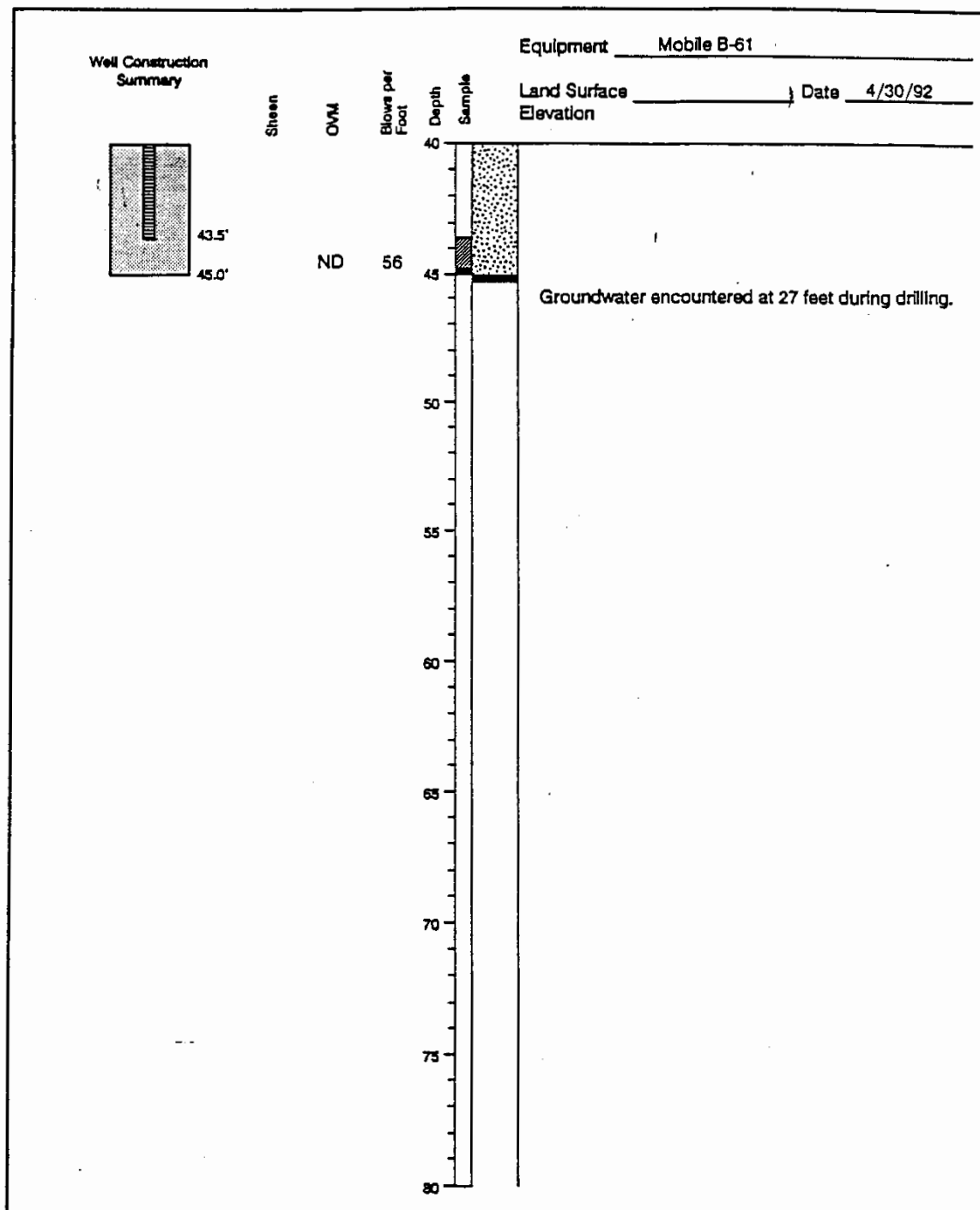
DATE  
18 Jun 92

REVISED /

DATE

KB 01153





Applied Geotechnology Inc.  
Geotechnical Engineering  
Geology & Hydrogeology

**Log of Monitoring Well 3 (40-45')**  
Puget Sound National Bank/West Coast Door - Phase II  
Tacoma, Washington

PLATE

**5b**

JOB NUMBER  
15,536.003

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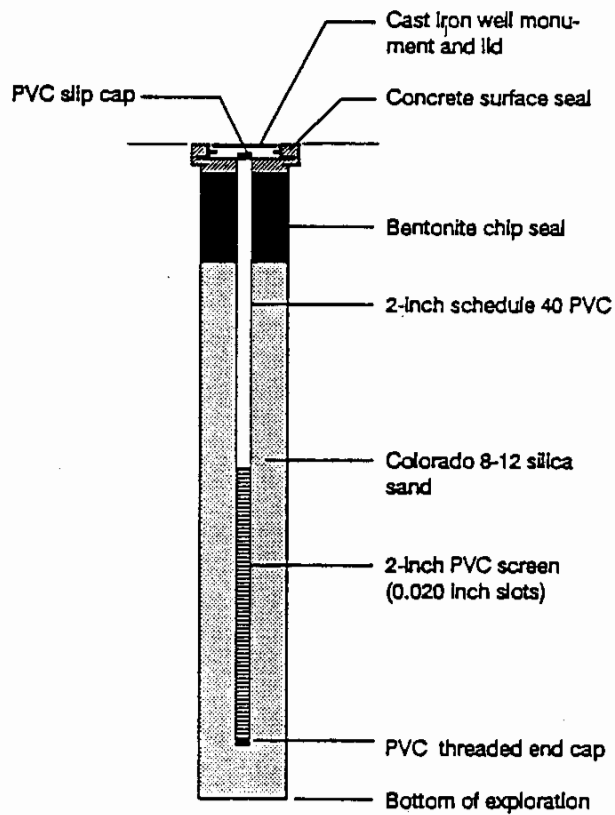
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DATE  
18 Jun 92

REVISED /

DATE

KB 01154



Applied Geotechnology Inc.  
Geotechnical Engineering  
Geology & Hydrogeology

**Monitoring Well Construction**  
Puget Sound National Bank/West Coast Door - Phase II  
Tacoma, Washington

PLATE

**2**

JOB NUMBER  
15,538.003

DRAWN  
SES

APPROVED  
*[Signature]*

DATE  
18 Jun 92

REVISED

DATE

KB 01148

# BORING LOG MW-4

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0	concrete					
5		Damp	50(4)	GP	<u>Sandy-Gravel</u> , gravel and cobbles with medium to coarse sand, brown. No odor	
10		Moist	26		<u>Sandy-Gravel</u> , gravel and cobbles with medium to coarse sand, brown. No odor	
15	bentonite	Moist	50(6)		<i>No Recovery at 15 foot interval, sand in drill cutting.</i>	
20		Moist/ Wet	50(6)	SP	<u>Sand</u> , Medium to coarse, with gravel, brown. No odor.	
25		Wet	50(6)		<u>Sand</u> , Medium to coarse, with gravel, gray. Slight creosote odor.	
30	sand	Wet	50(6)		<u>Sand</u> , Medium to coarse, with gravel, gray. No odor.	
35		Wet	50(6)		<u>Sand</u> , Medium to coarse, with gravel, gray. No odor.	
40					Boring terminated at 35 feet.	

Sampler: Split-spoon. Soil sampled collected every 5 feet beginning at 2.5 feet below ground surface.

Driller: Cascade Drilling, Inc. Hollow-stem auger.

Monitoring Well: 2"-PVC, Screened 25' to 35', 0.010" Slot



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
Bellevue, Washington 98004

## BORING LOG MW-4

West Coast Door Property  
3133 South Cedar Street  
Tacoma, Washington 98409

Job Number:

JN-26192-1

Date:

07/28/06

Logged by:

RBR

Plate:

A-5

# BORING LOG MW-5

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0	Concrete					
5		Damp	32	GP	<u>Sandy-Gravel</u> , gravel and cobbles with medium to coarse sand, brown. No odor	
10		Damp	27	SP	<u>Sand</u> , fine to medium sand, with minor gravel. No odor	
15			50(3)		No Recovery at 15 foot interval, sand in drill cutting.	
20		Damp/ Moist	24	SP	<u>Sand</u> , fine to medium sand, with gravel, brown. No odor.	
25		Wet	63	GP	<u>Sandy-Gravel</u> , Gravel, with medium to coarse sand, brown to gray. Strong creosote odor.	
30		Wet	50(6)	GP	<u>Sandy-Gravel</u> , Gravel, with medium to coarse sand, gray. Strong creosote odor.	
35		Wet	50(6)	SP	<u>Gravelly Sand</u> , Medium to coarse sand, with gravel, gray. Strong creosote odor.	
40					Boring terminated at 35 feet.	

Sampler: Split-spoon. Soil sampled collected every 5 feet beginning at 2.5 feet below ground surface.  
 Driller: Cascade Drilling, Inc. Hollow-stem auger.  
 Monitoring Well: 2"-PVC, Screened 25' to 35', 0.010" Slot



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
 Bellevue, Washington 98004

## BORING LOG MW-5

Former West Coast Door Property  
 3133 South Cedar Street  
 Tacoma, Washington 98409

Job Number:  
JN-26192-3

Date:  
09/18/06

Logged by:  
RBR

Plate:  
A-6

# BORING LOG MW-6

Depth/ Sample	Well Design	Moisture/ Water Table	Blows / Foot	USCS	DESCRIPTION	Head Space Analysis (ppm)
0	cobble					
5		Damp	22	GP	<u>Sandy-Gravel</u> , gravel and cobbles with medium to coarse sand, brown. No odor	
10		Damp	28	GP	<u>Sandy-Gravel</u> , gravel and cobbles with medium to coarse sand, brown. No odor	
15	bentonite	Damp	43	SP	<u>Sand</u> , medium to coarse sand, with some gravel, brown. No odor.	
20		Damp	38	SP	<u>Sand</u> , medium to coarse sand, with some gravel, brown. Slight creosote odor.	
25		Damp/ Moist	33	SP	<u>Sand</u> , fine to medium sand, with some gravel, gray. Strong creosote odor.	
30	sand	Wet	39	SP	<u>Sand</u> , fine to medium sand, with some gravel, gray. Strong creosote odor.	
35		Wet	18	SP	<u>Gravelly Sand</u> , medium to coarse sand, with gravel, gray. Moderate creosote odor.	
40					Boring terminated at 35 feet.	

Sampler: Split-spoon. Soil sampled collected every 5 feet beginning at 2.5 feet below ground surface.  
 Driller: Cascade Drilling, Inc. Hollow-stem auger.  
 Monitoring Well: 2"-PVC, Screened 25' to 35', 0.010" Slot



**ENVIRONMENTAL  
ASSOCIATES, INC.**

1380 - 112th Avenue NE, Suite 300  
 Bellevue, Washington 98004

## BORING LOG MW-6

Former West Coast Door Property  
 3133 South Cedar Street  
 Tacoma, Washington 98409

Job Number:  
 JN-26192-3

Date:  
 09/18/06

Logged by:  
 RBR

Plate:  
 A-7

# LOG OF WELL MW-7

(Page 1 of 3)

Date/Time Started : 1-26-07/0827  
 Date/Time Completed : 1-26-07/1415  
 Total Boring Depth : 52.5'  
 Total Well Depth : 40'  
 Depth to water ATD : 27.5'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 3" diameter 18"  
 Drive Hammer (lbs) : 140



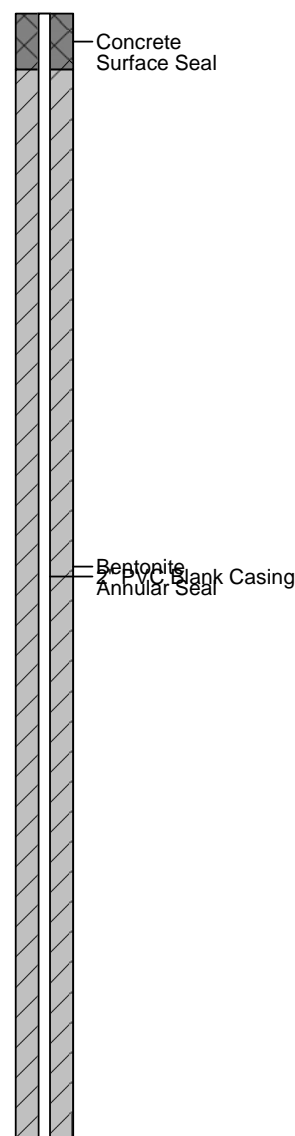
Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-7

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0		0.0 - 0.5 Concrete.						
		0.5 - 1.0 Pea gravel.	GP					
		1.0 - 2.5 Silty SAND with strong creosote odor, dry.	SM					
		2.5 - 3.0 Concrete.						
5		5.0 - 6.5 Cobble.	-		5	50/3"	-	-
		7.5 - 9.0 Broken Cobble.	-		2	50/1"	-	-
10		10.0 - 11.5 SAND with gravel, trace silt (80% medium to coarse sand, 15% fine to coarse gravel, 5% silt), brown, moist.	SP		4	50/2"	-	-
		12.5 - 14.0 GRAVEL, trace sand, trace silt (90% fine gravel, 5% coarse sand, 5% silt), brown, moist.	GP		5	50/3"	44.8	-
15		15.0 - 16.5 GRAVEL, trace sand, trace silt (90% fine to coarse gravel, 5% coarse sand, 5% silt), brown, moist.	GP		5	50/3"	30	-
		17.5 - 18.25 Gravelly SAND trace silt (55% coarse sand, 40% fine gravel, 5% silt), brown, moist, creosote odor.	SP		50	50/6"	67.0	MW7-17.5-19
		18.25 - 19.0 SAND (100% fine sand), brown, moist, strong creosote odor.	SP					
20								



Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

## LOG OF WELL MW-7

(Page 1 of 3)

# LOG OF WELL MW-7

(Page 2 of 3)

Date/Time Started : 1-26-07/0827  
 Date/Time Completed : 1-26-07/1415  
 Total Boring Depth : 52.5'  
 Total Well Depth : 40'  
 Depth to water ATD : 27.5'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 3" diameter 18"  
 Drive Hammer (lbs) : 140



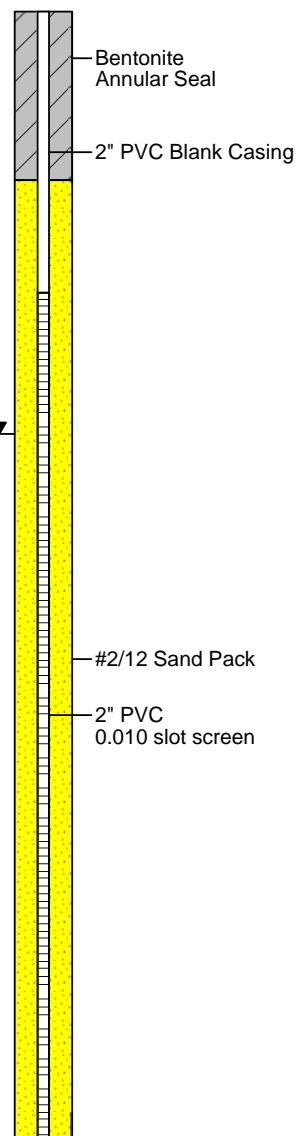
Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-7

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
20	X	20.0 - 21.5 Gravelly SAND trace silt (55% coarse sand, 40% fine gravel, 5% silt), brown, moist, creosote odor.	SP		5	50/3"	64	-
	X	22.5 - 24.0 SAND trace gravel (95% medium to coarse sand, 5% coarse gravel), gray, moist, creosote odor.	SP		20	50/4"	60.2	-
25	X	25.0 - 26.5 SAND trace gravel (95% medium to coarse sand, 5% coarse gravel), gray, moist, creosote odor.	SP		50	50/6"	65	MW7-25-26.5
	X	27.5 - 29.0 SAND (100% fine to coarse sand), gray, wet, slight creosote odor.	SP		100	29/30/39	22	-
30	X	30.0 - 31.5 SAND (100% fine to coarse sand), gray, wet, slight creosote odor.	SP		40	33/36/39	32.8	-
	X	32.5 - 34.0 GRAVEL minor sand (85% fine to coarse gravel, 15% medium to coarse sand), dark gray, wet, slight musty odor.	GP		15	27/30/32	61.2	-
35	X	35.0 - 36.5 NO RECOVERY	-		1	29/31/32	-	-
	X	37.5 - 39.0 NO RECOVERY.	-		-	50/2"	-	-
40								



Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

## LOG OF WELL MW-7

(Page 2 of 3)

# LOG OF WELL MW-7

(Page 3 of 3)

Date/Time Started : 1-26-07/0827  
 Date/Time Completed : 1-26-07/1415  
 Total Boring Depth : 52.5'  
 Total Well Depth : 40'  
 Depth to water ATD : 27.5'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 3" diameter 18"  
 Drive Hammer (lbs) : 140



Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-7

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
40	X	40.0 - 41.0 SAND (100% fine to medium sand), gray, wet, slight creosote odor.	SP		20	50/4"	22	-
	X	41.0 - 41.5 Sandy GRAVEL (50% fine to coarse gravel, 50% medium to coarse sand), gray, wet, slight creosote odor.	GP					
	X	42.5 - 44.0 Gravelly SAND (60% fine to coarse sand, 40% fine to coarse gravel), gray, wet, creosote odor.	SP		35	50/6"	44.8	-
45	X	45.0 - 46.5 SAND (100% fine to coarse sand), gray, wet, creosote odor.	SP		75	32-50/4"	34.8	MW7-GW-45
	X	47.5 - 49.0 NO RECOVERY.	-		-	50/6"	-	-
50	X	50.0 - 51.5 SAND (100% fine to coarse sand), gray, wet, heavy rainbow sheen, strong petroleum odor.	SP		100	50/4"	37.1	-
	X	52.5 - 54.0 NO RECOVERY.	-		-	-	-	MW7-52.5-GW
55								
60								



Bentonite

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

## LOG OF WELL MW-7

(Page 3 of 3)

08-13-2008 \\Pacific-8e185afpublic\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\MW7.bor



# LOG OF WELL MW-8

(Page 1 of 2)

Date/Time Started : 1-31-07/0850  
 Date/Time Completed : 1-31-07/1100  
 Total Boring Depth : 40'  
 Total Well Depth : 40'  
 Depth to water ATD : 30'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 140



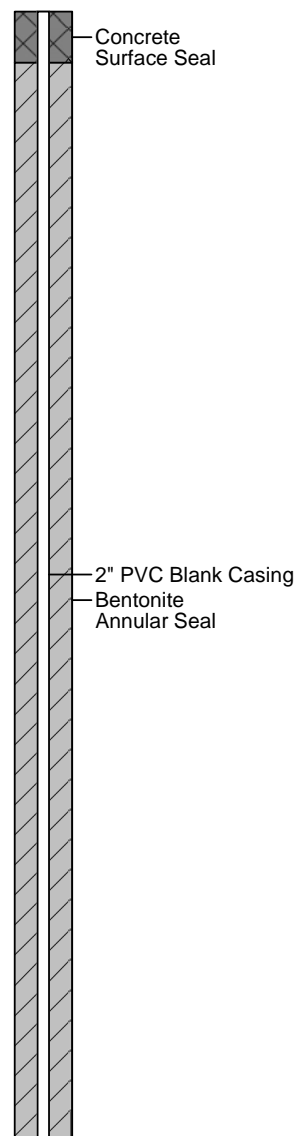
Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-8

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
0		0.0 - 0.5 Concrete.						
		0.5 - 5.0 Soil cuttings are sandy with mainly rounded cobbles.	GP					
5		5.0 - 6.5 NO RECOVERY.	-		0	50/1"	-	-
		Driller comments that below 8 feet, he is not drilling in fill material.						
10		10.0 - 11.5 Sandy GRAVEL with silt, fill, dry.	GP		3	50/2"	32.7	-
15		15.0 - 16.5 SAND minor silt, minor gravel (75% fine to coarse sand, 15% silt, 10% fine gravel), brown, dry.	SP		30	50/4"	166	MW8-15-16.5
20		20.0 - 21.5 SAND minor gravel, trace silt (85% fine to coarse sand, 10% fine gravel, 5% silt), brown-yellow, slightly moist.	SP		20	50/5"	96.6	-



Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

## LOG OF WELL MW-8

(Page 1 of 2)

# LOG OF WELL MW-8

(Page 2 of 2)

Date/Time Started : 1-31-07/0850  
 Date/Time Completed : 1-31-07/1100  
 Total Boring Depth : 40'  
 Total Well Depth : 40'  
 Depth to water ATD : 30'  
 Elevation (ft) : NA  
 Drilling Method : HSA  
 Sampler Type : D+M S.S. 2" diameter 18"  
 Drive Hammer (lbs) : 140



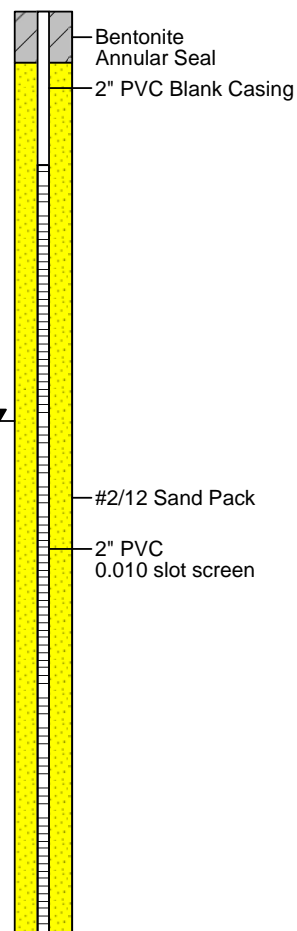
Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-8

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	Blow Count	PID (ppm)	Sample ID
22								
	X	25.0 - 26.5 SAND trace gravel, trace silt (90% fine to coarse sand, 5% fine gravel, 5% silt), brown, slightly moist.	SP		50	50/6"	69/115	MW8-25-26.5
27								
	X	30.0 - 31.5 SAND trace silt (95% fine to coarse sand, 5% silt), brown, wet, no odor.	SP		50	50/6"	35.9	-
32								
	X	35.0 - 36.5 SAND minor gravel, trace silt (85% fine to coarse sand, 10% fine gravel, 5% silt), brown-gray, wet, assorted cobbles.	SP		70	50/6"	93.6	-
37								
	X	40.0 - 41.5 SAND (100% fine to coarse sand), gray-brown, wet, no odor.	SP		55	50/6"	23	-
42								



08-13-2008 \\Pacific-8e185afpublic\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\MW8.bor

Drilling Company : Cascade Drilling, Inc.  
 Drilling Foreman : Steve Choate  
 Equipment : CME 65  
 Pacific Crest Rep. : Annica Nord

LOG OF WELL MW-8

(Page 2 of 2)

# LOG OF WELL MW-9

(Page 1 of 4)

Date/Time Started : 9-6-2007/0915  
 Date/Time Completed : 9-7-2007/1100  
 Total Boring Depth : 70'  
 Total Well Depth : 70'  
 Depth to water ATD : 25'  
 Elevation : 245.99'  
 Drilling Method : Sonic  
 Sampler Type : Sonic Core Sampler



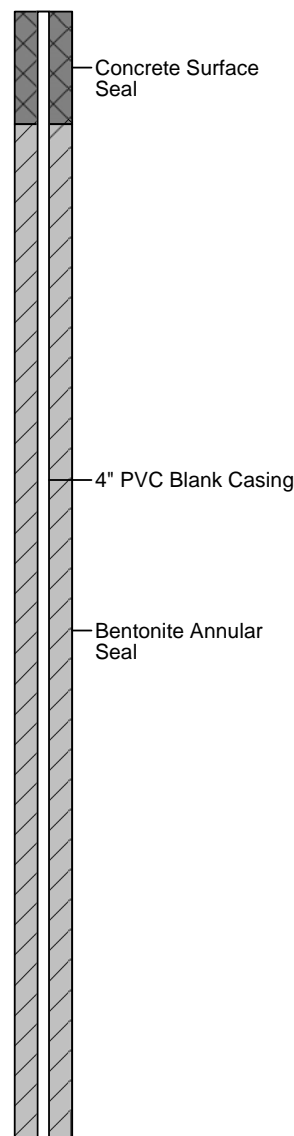
Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-9

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Lab No.
0		0.0 - 0.5 Asphalt.					
		0.5 - 2.5 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown-gray, moist, no odor.	GP		100	0.0	-
		2.5 - 5.0 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, moist, no odor.	GP		100	0.0	-
5		5.0 - 7.5 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, moist, no odor.	GP		100	-	-
		7.5 - 10.0 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, moist, no odor.	GP		100	0.0	-
10		10.0 - 12.0 SAND, (100% fine to medium sand), light brown, moist, no odor.	SP		100	0.0	-
		12.0 - 12.5 Sandy GRAVEL, (65% fine to coarse gravel, 35% fine to coarse sand), light brown-gray, moist, no odor.	GP				
		12.5 - 15.0 Sandy GRAVEL, (65% fine to coarse gravel, 35% fine to coarse sand), light brown-gray, moist, no odor.	GP		100	-	-
15		15.0 - 17.5 Gravelly SAND, trace silt, (55% fine to coarse sand, 40% fine to coarse gravel, 5% silt), brown-gray, moist, no odor.	SP		100	-	-
		17.5 - 20.0 Gravelly SAND, trace silt, (55% fine to coarse sand, 40% fine to coarse gravel, 5% silt), brown-gray, moist, no odor.	SP		100	1.5	-
20							



Drilling Company : Boat Longyear Drilling, Inc.  
 Drilling Foreman : Dale  
 Equipment : Sonic  
 Pacific Crest Rep. : Annica Nord

## LOG OF WELL MW-9

(Page 1 of 4)

# LOG OF WELL MW-9

(Page 2 of 4)

Date/Time Started : 9-6-2007/0915  
 Date/Time Completed : 9-7-2007/1100  
 Total Boring Depth : 70'  
 Total Well Depth : 70'  
 Depth to water ATD : 25'  
 Elevation : 245.99'  
 Drilling Method : Sonic  
 Sampler Type : Sonic Core Sampler

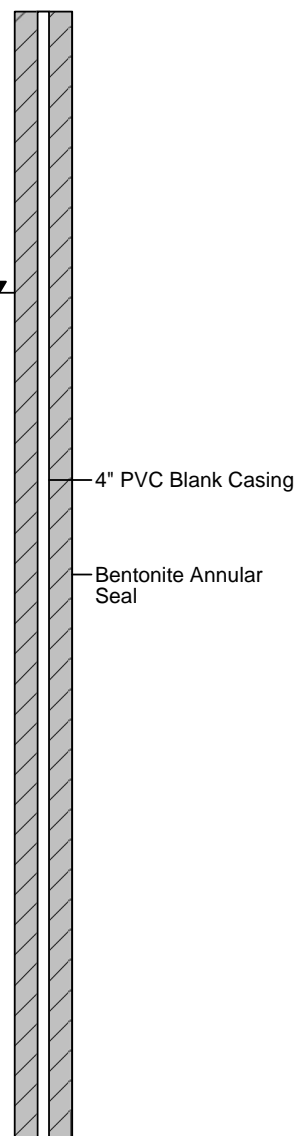


Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Lab No.	Well: MW-9
20		20.0 - 21.0 SAND, minor gravel, trace silt (85% fine to coarse sand, 10% fine gravel, 5% silt), dark brown, moist, no odor.	SP		100	0.0	-	
		21.0 - 23.0 SAND, with silt (80% fine to coarse sand, 20% silt), gray-brown, moist, no odor.	SP		100	0.0	-	
		23.0 - 24.0 GRAVEL, with sand, trace silt, (75% fine to coarse gravel, 20% fine to coarse sand, 5% silt), gray, moist, no odor.	GP		100	3.8	MW9-24-25	
		24.0 - 25.0 Silty SAND, (60% fine sand, 40% silt), gray, wet, creosote odor, assorted cobbles.	SP-SM					
25		25.0 - 27.0 SAND, (100% fine sand), gray, wet, strong creosote odor.	SP		100	0.0	-	
		27.0 - 27.5 GRAVEL, with sand, (80% fine to coarse gravel, 20% fine to coarse sand), gray, wet, rainbow sheen, strong creosote odor.	GP					
		27.5 - 30.0 GRAVEL, with sand, (80% fine to coarse gravel, 20% fine to coarse sand), gray, wet, heavy rainbow sheen, strong creosote odor.	GP		100	0.0	-	
30		30.0 - 32.5 GRAVEL, with sand, (80% fine to coarse gravel, 20% fine to coarse sand), gray, wet, heavy rainbow sheen, strong creosote odor.	GP		100	2.6	-	
		32.5 - 35.0 Gravelly SAND, (55% fine to coarse sand, 45% fine to coarse gravel), gray, wet, strong creosote odor, heavy rainbow sheen.	SP		100	1.6	-	
35		35.0 - 37.0 SAND, minor gravel, (90% fine to coarse sand, 10% fine to coarse gravel), gray, wet, creosote odor.	SP		100	0.0	-	
		37.0 - 37.5 GRAVEL, with sand, (75% fine to coarse gravel, 25% fine to coarse sand), gray, wet, creosote odor, slight sheen evident on soil.	GP					
		37.5 - 40.0 GRAVEL, with sand, (75% fine to coarse gravel, 25% fine to coarse sand), gray, wet, creosote odor, slight sheen evident on soil.	GP		100	-	MW9-40-GW	
40								



Drilling Company : Boat Longyear Drilling, Inc.  
 Drilling Foreman : Dale  
 Equipment : Sonic  
 Pacific Crest Rep. : Annica Nord

## LOG OF WELL MW-9

(Page 2 of 4)

# LOG OF WELL MW-9

(Page 3 of 4)

Date/Time Started : 9-6-2007/0915  
 Date/Time Completed : 9-7-2007/1100  
 Total Boring Depth : 70'  
 Total Well Depth : 70'  
 Depth to water ATD : 25'  
 Elevation : 245.99'  
 Drilling Method : Sonic  
 Sampler Type : Sonic Core Sampler

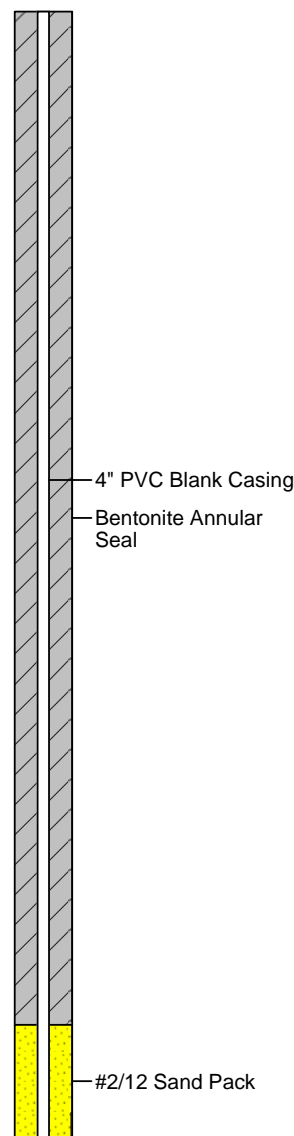


Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Lab No.	Well: MW-9
40		40.0 - 42.5 SAND (100% fine to medium sand), gray, wet, creosote odor.	SP		100	-	-	
		42.5 - 44.5 SAND (100% fine to medium sand), gray, wet, creosote odor.	SP		100	-	-	
45		44.5 - 47.0 Sandy SILT, (50% silt, 50% fine sand), gray, moist, very dense, no odor.	ML		100	0.0	MW9-45-47	
		47.0 - 50.0 Sandy GRAVEL, trace silt, (55% fine to coarse gravel, 40% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	0.0	-	
		50.0 - 52.5 GRAVEL, with sand, trace silt, (75% fine to coarse gravel, 20% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	-	-	
50		52.5 - 53.5 GRAVEL, with sand, trace silt, (75% fine to coarse gravel, 20% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	-	-	
		53.5 - 54.0 GRAVEL, trace sand, trace silt, (90% fine to coarse gravel, 5% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	-	-	
		54.0 - 55.0 Sandy GRAVEL, trace silt, (55% fine to coarse gravel, 40% fine to coarse sand, 5% silt), brown, wet, creosote odor.	GP		100	-	-	
		55.0 - 55.5 GRAVEL, trace sand, trace silt, (90% fine to coarse gravel, 5% fine to coarse sand, 5% silt), brown, wet, slight creosote odor.	GP		100	-	-	
55		55.5 - 57.5 Gravelly SAND, (55% fine to coarse sand, 45% fine to coarse gravel), gray-brown, wet, very sight to no creosote odor.	SP		100	0.0	MW9-55.5-57.5	
		57.5 - 59.5 Sandy GRAVEL, trace silt, (70% fine to coarse gravel, 25% fine to coarse sand, 5% silt), wet, brown, slight creosote odor.	GP		100	-	-	
		59.5 - 60.0 GRAVEL, trace sand, trace silt, (90% fine to coarse gravel, 5% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	-	-	
60			GP					



Drilling Company : Boat Longyear Drilling, Inc.  
 Drilling Foreman : Dale  
 Equipment : Sonic  
 Pacific Crest Rep. : Annica Nord

LOG OF WELL MW-9

(Page 3 of 4)

# LOG OF WELL MW-9

(Page 4 of 4)

Date/Time Started : 9-6-2007/0915  
 Date/Time Completed : 9-7-2007/1100  
 Total Boring Depth : 70'  
 Total Well Depth : 70'  
 Depth to water ATD : 25'  
 Elevation : 245.99'  
 Drilling Method : Sonic  
 Sampler Type : Sonic Core Sampler



PACIFIC CREST ENVIRONMENTAL  
 1533 BENDIGO BOULEVARD NORTH PO BOX 952  
 NORTH BEND, WA 98048

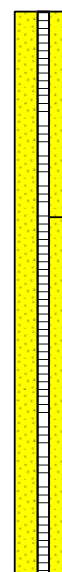
Site Name: West Coast Door Property

Client: William Swensen

Project #: 112-001

Well: MW-9

Depth In Feet	Samples	Description	USCS	Graphic	% Recovery	PID (ppm)	Lab No.
60		60.0 - 64.0 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	-	-
65		64.0 - 67.0 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, wet, no odor.	GP		100	0.0	-
		67.0 - 67.5 GRAVEL, minor sand, trace silt, (85% fine to coarse gravel, 10% fine to coarse sand, 5% silt), brown, wet, no odor.	GP				
		67.5 - 70.0 Sandy SILT, (60% silt, 40% very fine sand), gray, moist, no odor, very dense.	ML		100	0.0	MW9-68-70
70							
75							
80							



4" PVC 0.010 slot screen

#2/12 Sand Pack

08-13-2008 \\Pacific-8e185afpublic\Project Files\112 Swensen\112-001 West Coast Door Property\Boring Logs\MW9.bol

Drilling Company : Boat Longyear Drilling, Inc.  
 Drilling Foreman : Dale  
 Equipment : Sonic  
 Pacific Crest Rep. : Annica Nord

LOG OF WELL MW-9

(Page 4 of 4)

**Drill Date:** June 10, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Client:** Bill Swensen

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Project:** Swensen-WCD

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Groundwater ATD (ft bgs):** 21.84\*

**Ground Surf Elev. & Datum:** 244.5 NGVD 29

**Coordinate System:** NAD83/98

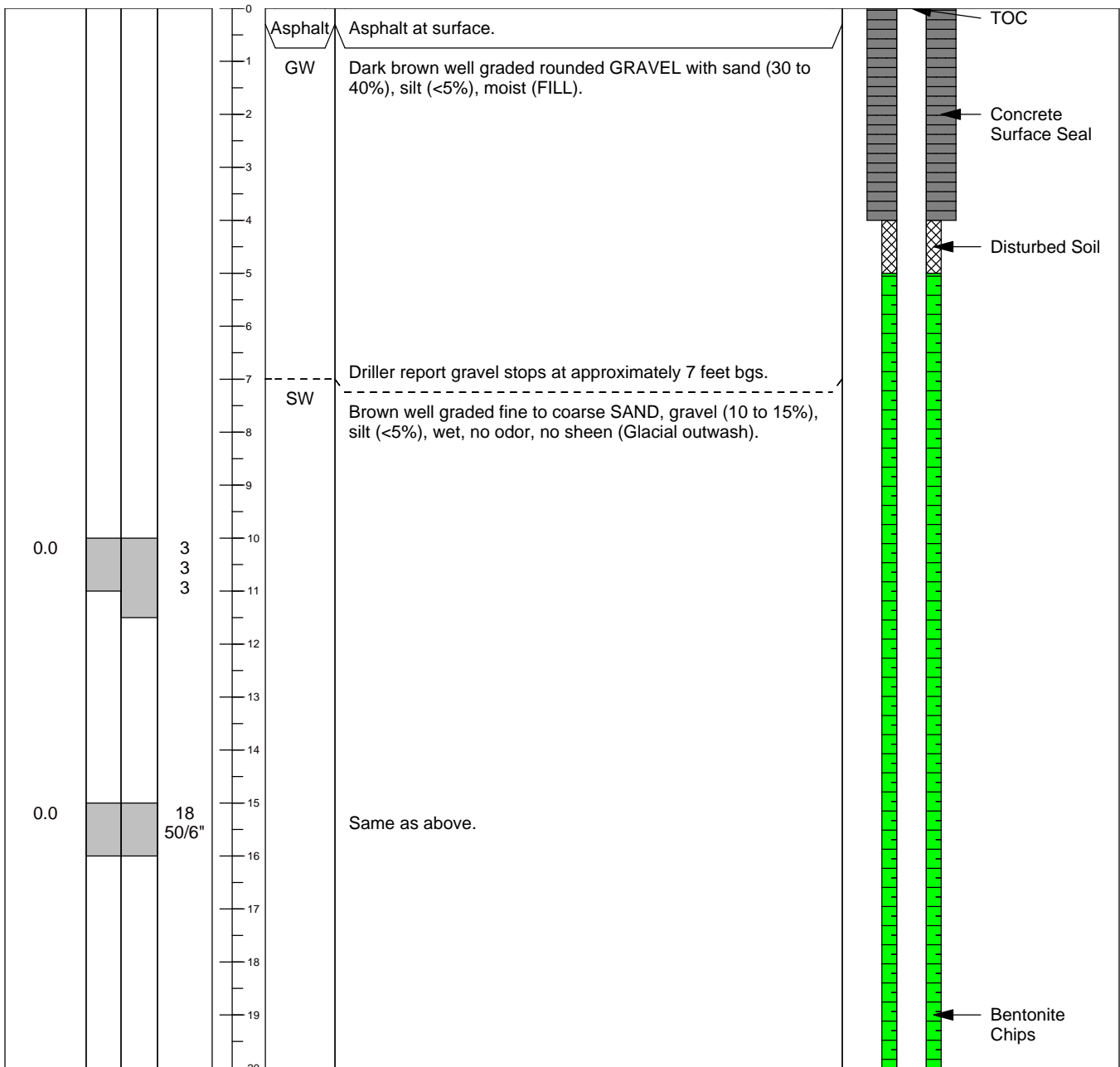
**Latitude/Northing:** 697945.61

**Longitude/Easting:** 1149387.71

**Casing Elevation:** 244.22 ft

**Remarks:** \*Depth to water from top of casing from 6/22/10 groundwater sampling.

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 10, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Client:** Bill Swensen

**Drill Type:** CME 75; 4-inch HSA

**Project:** Swensen-WCD

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 21.84\*

**Ground Surf Elev. & Datum:** 244.5 NGVD 29

**Coordinate System:** NAD83/98

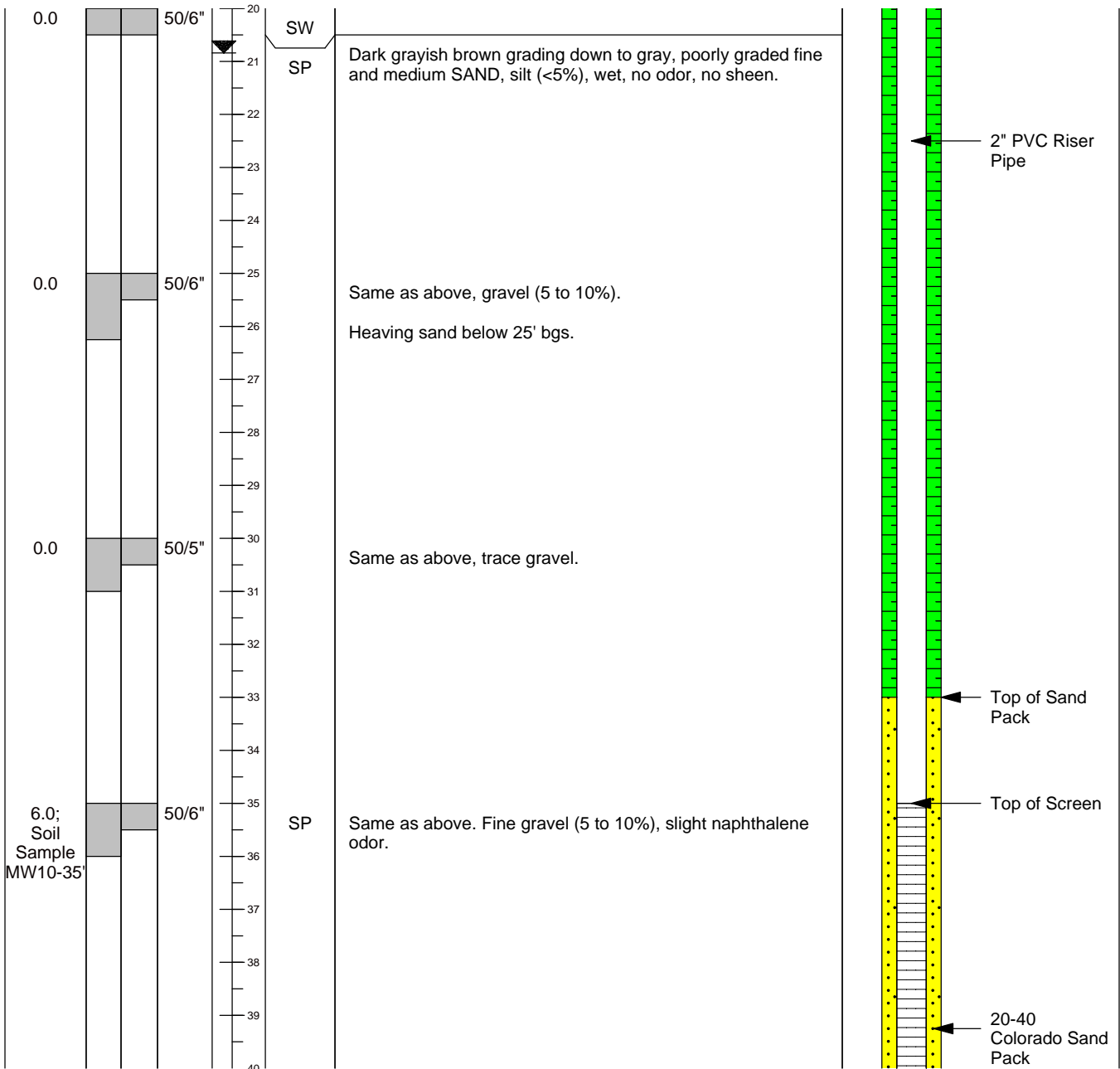
**Latitude/Northing:** 697945.61

**Longitude/Easting:** 1149387.71

**Casing Elevation:** 244.22 ft

**Remarks:** \*Depth to water from top of casing from 6/22/10 groundwater sampling.

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table



**Monitoring Well ID: MW-10**

**Drill Date:** June 10, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 21.84\*

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Ground Surf Elev. & Datum:** 244.5 NGVD 29

**Coordinate System:** NAD83/98

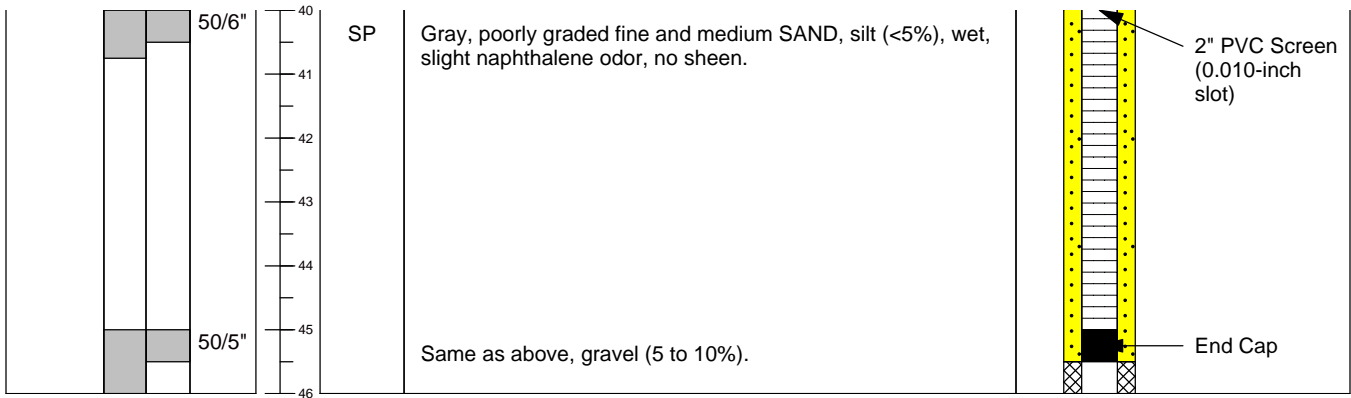
**Latitude/Northing:** 697945.61

**Longitude/Easting:** 1149387.71

**Casing Elevation:** 244.22 ft

**Remarks:** \*Depth to water from top of casing from 6/22/10 groundwater sampling.

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 10, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Client:** Bill Swensen

**Drill Type:** CME 75; 4-inch HSA

**Project:** Swensen-WCD

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 18.5

**Ground Surf Elev. & Datum:** 243.9 NGVD 29

**Coordinate System:** NAD83/98

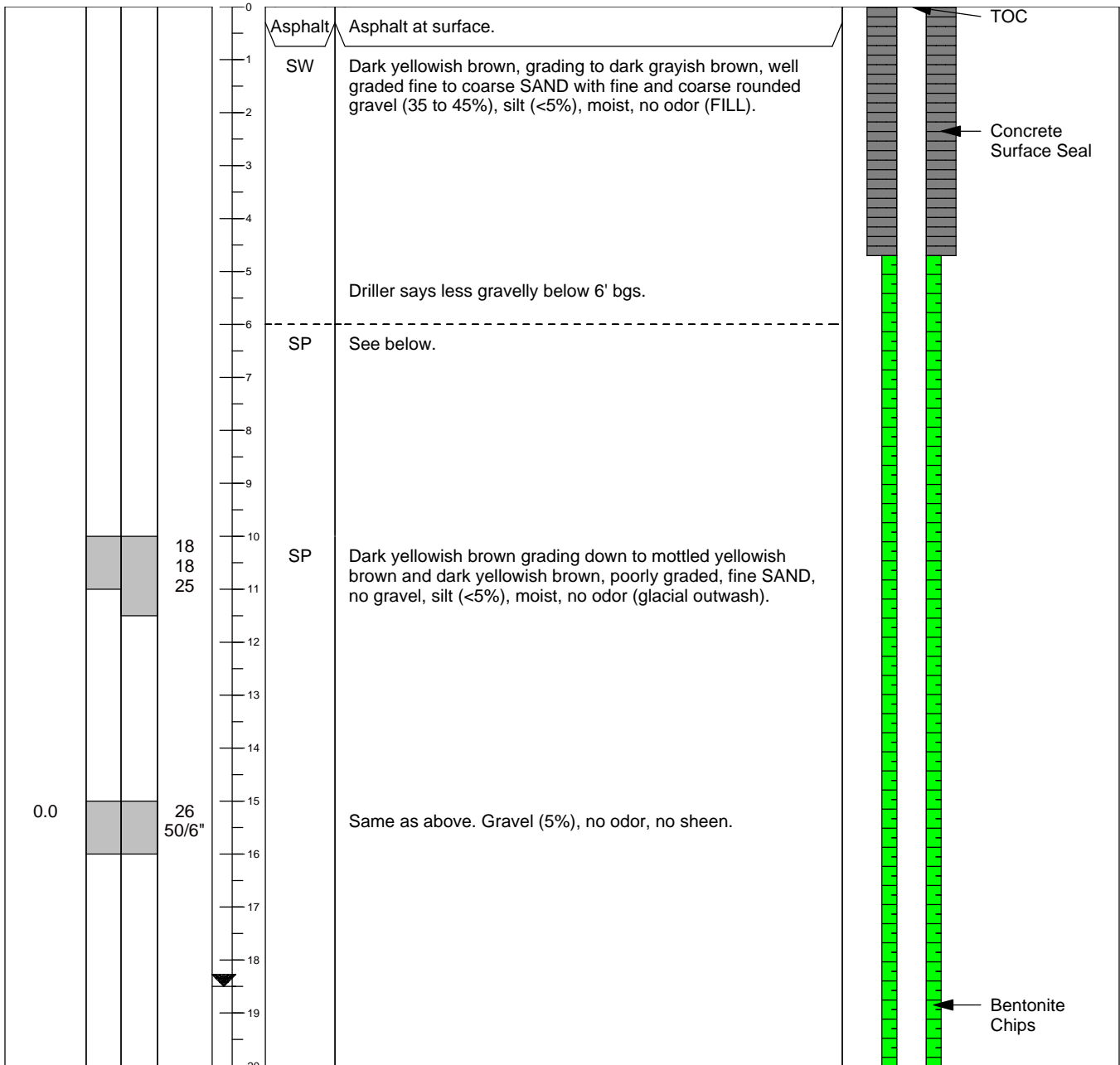
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**Longitude/Easting:** 1149380.41

**Casing Elevation:** 243.35 ft

**Remarks:**

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 10, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 18.5

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Ground Surf Elev. & Datum:** 243.9 NGVD 29

**Coordinate System:** NAD83/98

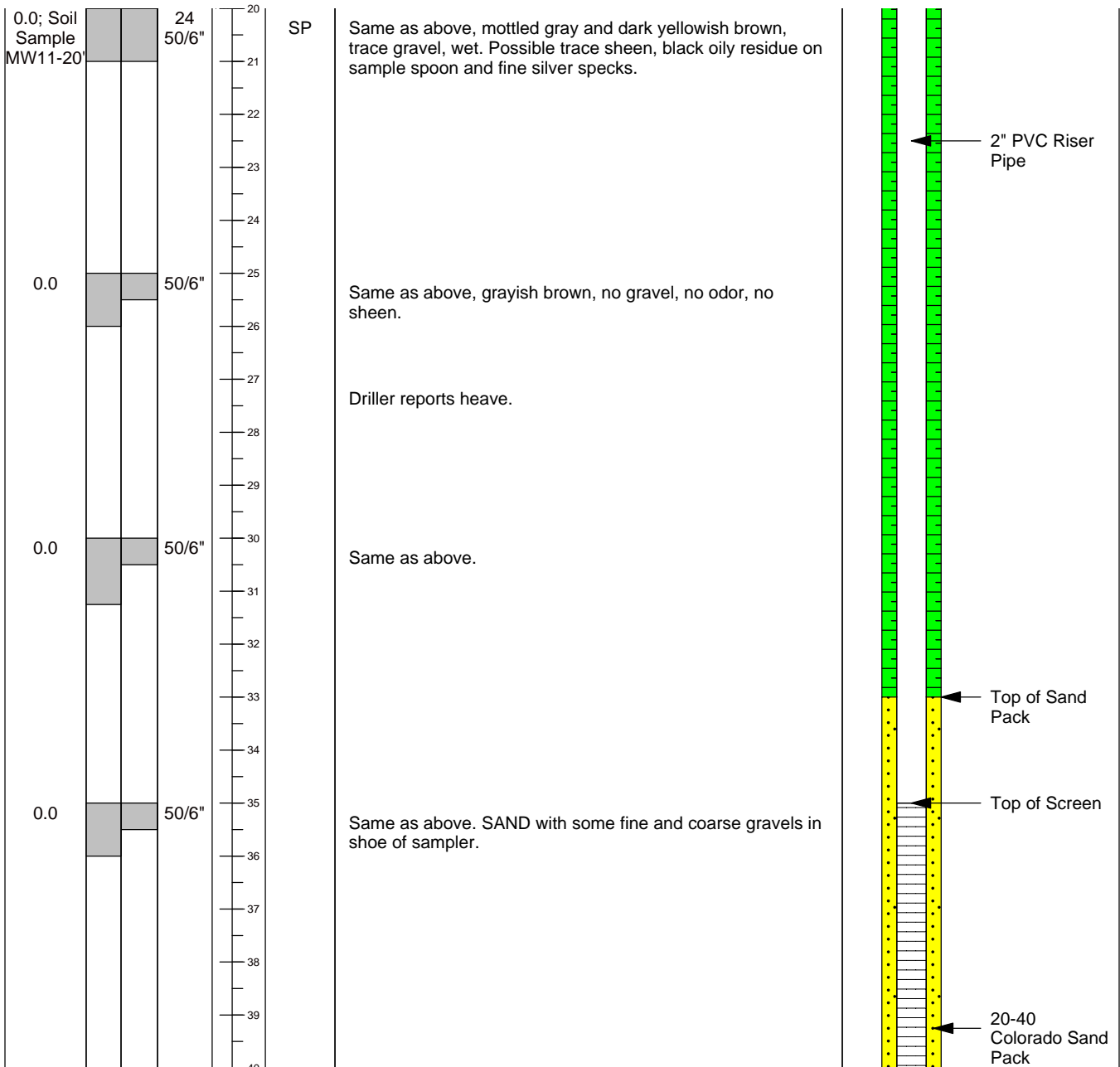
**Latitude/Northing:** 697807.34

**Longitude/Easting:** 1149380.41

**Casing Elevation:** 243.35 ft

**Remarks:**

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 10, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 46 ft bgs

**Groundwater ATD (ft bgs):** 18.5

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Ground Surf Elev. & Datum:** 243.9 NGVD 29

**Coordinate System:** NAD83/98

**Latitude/Northing:** 697807.34

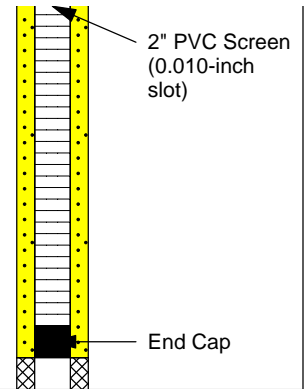
**Longitude/Easting:** 1149380.41

**Casing Elevation:** 243.35 ft

**Remarks:**

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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0.0; Soil Sample MW11-40		50/6"		SP	Same as above, dark grayish brown, no gravel.	
0.0		50/5"			Same as above.	



**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 11, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Client:** Bill Swensen

**Ground Surf Elev. & Datum:** 244.5 NGVD 29

**Coordinate System:** NAD83/98

**Latitude/Northing:** 698082.94

**Longitude/Easting:** 1149457.03

**Casing Elevation:** 243.97 ft

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 47 ft bgs

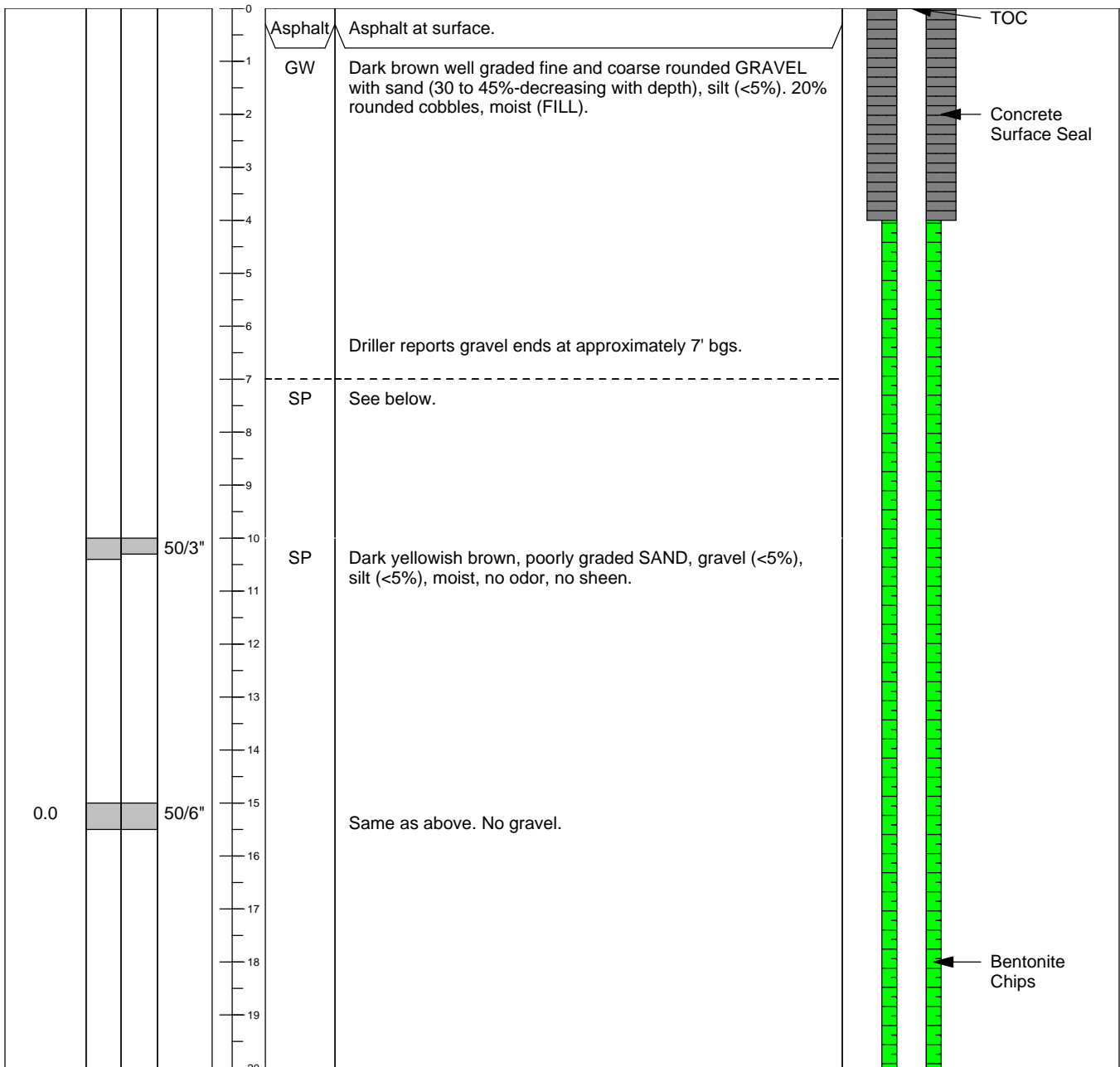
**Groundwater ATD (ft bgs):** 23.2

**Project:** Swensen-WCD

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Remarks:**

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 11, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 47 ft bgs

**Groundwater ATD (ft bgs):** 23.2

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Ground Surf Elev. & Datum:** 244.5 NGVD 29

**Coordinate System:** NAD83/98

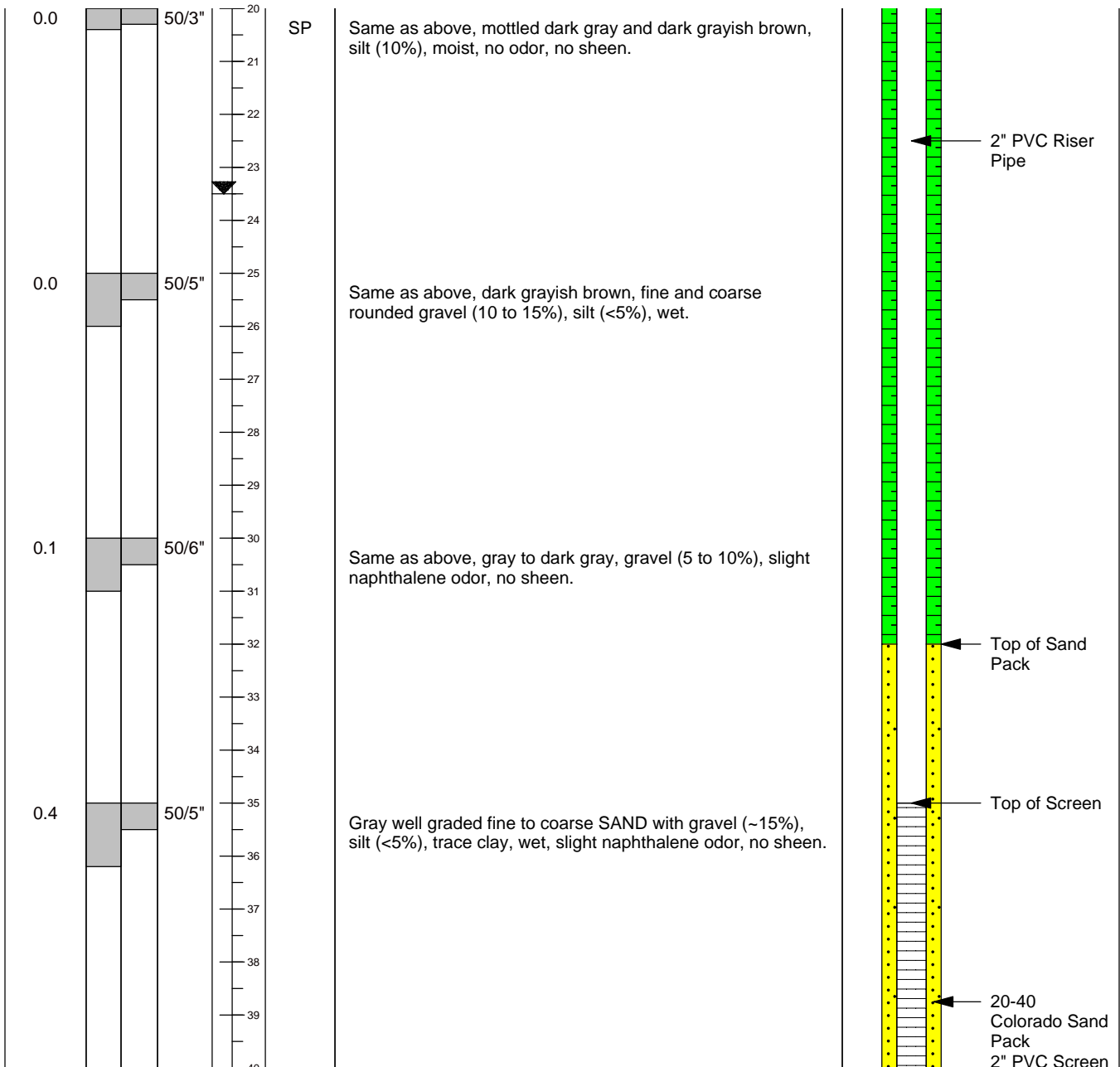
**Latitude/Northing:** 698082.94

**Longitude/Easting:** 1149457.03

**Casing Elevation:** 243.97 ft

**Remarks:**

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

**Drill Date:** June 11, 2010

**Logged By:** John LaManna

**Drilled By:** Curtis Askew / Cascade Drilling

**Drill Type:** CME 75; 4-inch HSA

**Sample Method:** 18" D&M Split-spoon

**Boring Diameter:** 8"

**Boring Depth (ft bgs):** 47 ft bgs

**Groundwater ATD (ft bgs):** 23.2

**Client:** Bill Swensen

**Project:** Swensen-WCD

**Site Location:** 3133 Cedar St,  
Tacoma, WA.

**Ground Surf Elev. & Datum:** 244.5 NGVD 29

**Coordinate System:** NAD83/98

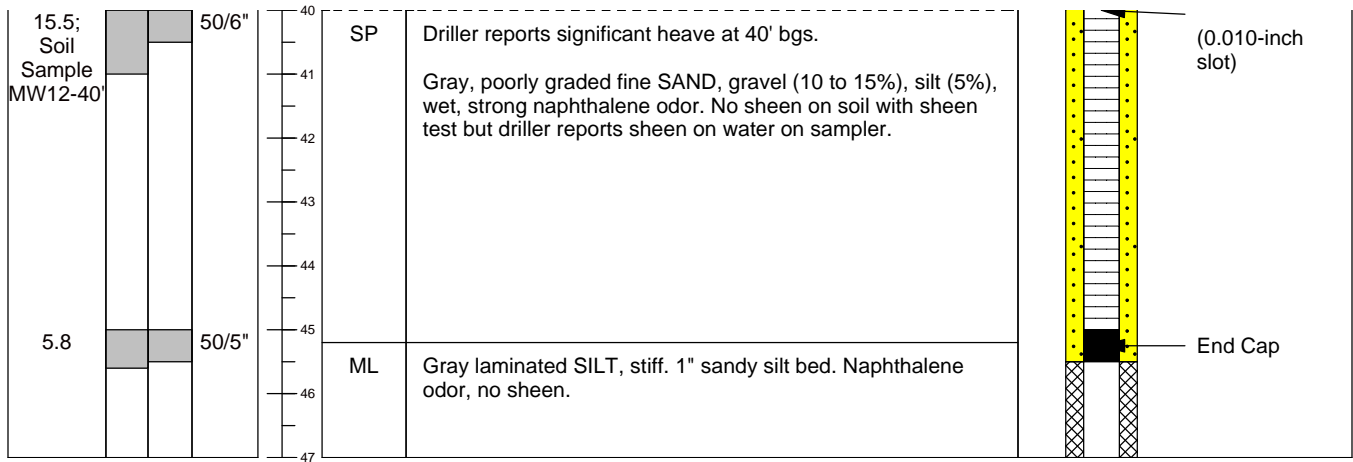
**Latitude/Northing:** 698082.94

**Longitude/Easting:** 1149457.03

**Casing Elevation:** 243.97 ft

**Remarks:**

PID Reading /Sample ID	DRIVE / RECOVERY	BLOW COUNT	DEPTH FT BGS	USCS SYMBOL	SOIL DESCRIPTION AND OBSERVATIONS: (color, texture, moisture, MAJOR CONSTITUENT, odor, staining, sheen, debris, etc.)	MONITORING WELL DETAIL
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**Notes:**

FT BGS = feet below ground surface  
ppm = parts per million

USCS = Unified Soil Classification System  
▼ = denotes groundwater table

FLOYD   SNIDER strategy ▪ science ▪ engineering		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	WELL ID: MW-14	
		LOGGED BY: K. Anderson	COORDINATE SYSTEM: NAVD 88	BORING LOCATION: 3102 S Cedar St, Tacoma WA	
DRILLED BY: Zack Bailey, Holocene Drilling		ECOLOGY WELL ID: BLH 434	NORTHING: 698001.295292	EASTING: 1149640.194015	
DRILLING EQUIPMENT: Geoprobe		SCREENED INTERVAL (ft bgs): 35-45	GROUND SURFACE ELEV.: N/A	TOC ELEVATION: 250.129194	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 80	DEPTH TO WATER (ft bgs): 26	
SAMPLING METHOD: Split spoon/continuous			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 10/5/2018	
Depth (feet)	USCS Symbol	Description	Drive/ Recovery	Sample ID	Well Construction
0		Brown, well-graded SAND with silt and gravel, dry, no odor.			<div>Protective Cover</div> <div>Concrete Pad</div> <div>2" Sch. 40 PVC</div> <div>Bentonite Chips</div> <div>12-20 Silica Sand</div> <div>0.010-Slot PVC Screen</div>
		At 2 feet bgs, becomes dark brown.			
4					
	SW-SM				
8					
	SW	Brown well-graded SAND with gravel and trace silt, dry.			
16	SW-SM	Brown, well-graded SAND with silt and gravel, dry, no odor.			
		Brown well-graded SAND with gravel and trace silt, dry, no odor.			
20	SW	At 19 feet bgs, slight musty odor.			
		At 20 feet bgs, brown oily stringer with creosote odor present. Rainbow sheen on sheen test.			
		At 21.5 feet bgs, becomes gray, no odor or sheen present.			
24	SP	Brown, poorly-graded medium SAND , moist, no odor.			
	SP-SM	Gray-brown, poorly-graded SAND with silt and gravel, moist, no odor.			
		At 26 feet bgs, becomes wet.			
28	SP	Gray-brown, poorly-graded SAND with trace silt, wet, no odor or sheen.			
32	SW-SM	Gray-brown, well-graded SAND with silt and gravel, wet, no odor or sheen.			
36	SW	Gray-brown, well-graded SAND, wet, no odor or sheen.			
		Gray-brown, poorly-graded fine SAND.			
40	SP	Gray-brown, well-graded SAND, wet, no odor or sheen.			
		At 40 feet bgs, gravel begins coarsening with depth.			
44					
	ML	Gray, firm sandy SILT with few fine wood fragments, slightly moist, no odor.			
48		Gray, well-graded SAND with silt and gravel, moist, no odor.			
	SW-SM	At 50 feet bgs, becomes gray-brown.			
52		At 52 feet bgs, becomes brown. No odor.			
	GW-GM	Well-graded rounded GRAVEL with silt. No odor.			
	SW-SM	Gray-brown, well-graded SAND with silt and gravel, no odor.			
56		Gray-brown, well-graded SAND with trace silt, no odor.			
	SW				
60		Gray, well-graded SAND with silt and gravel, no odor.			
	SW-SM	At 62 feet bgs, becomes more dense with increasing silt content, moist.			
64					
	SM	Gray-brown, dense silty SAND, no odor.			
68	SP	Gray-brown, dense poorly-graded medium SAND, moist, no odor.			
72	SW-SM	Gray-brown, well-graded SAND with silt and gravel, very moist, no odor.			
		Gray-brown, dense poorly-graded SAND with silt and fine rounded gravel, no odor.			
76	SP-SM	At 78 feet bgs, becomes gray.			
80		Bottom of boring = 80 feet bgs.			
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		



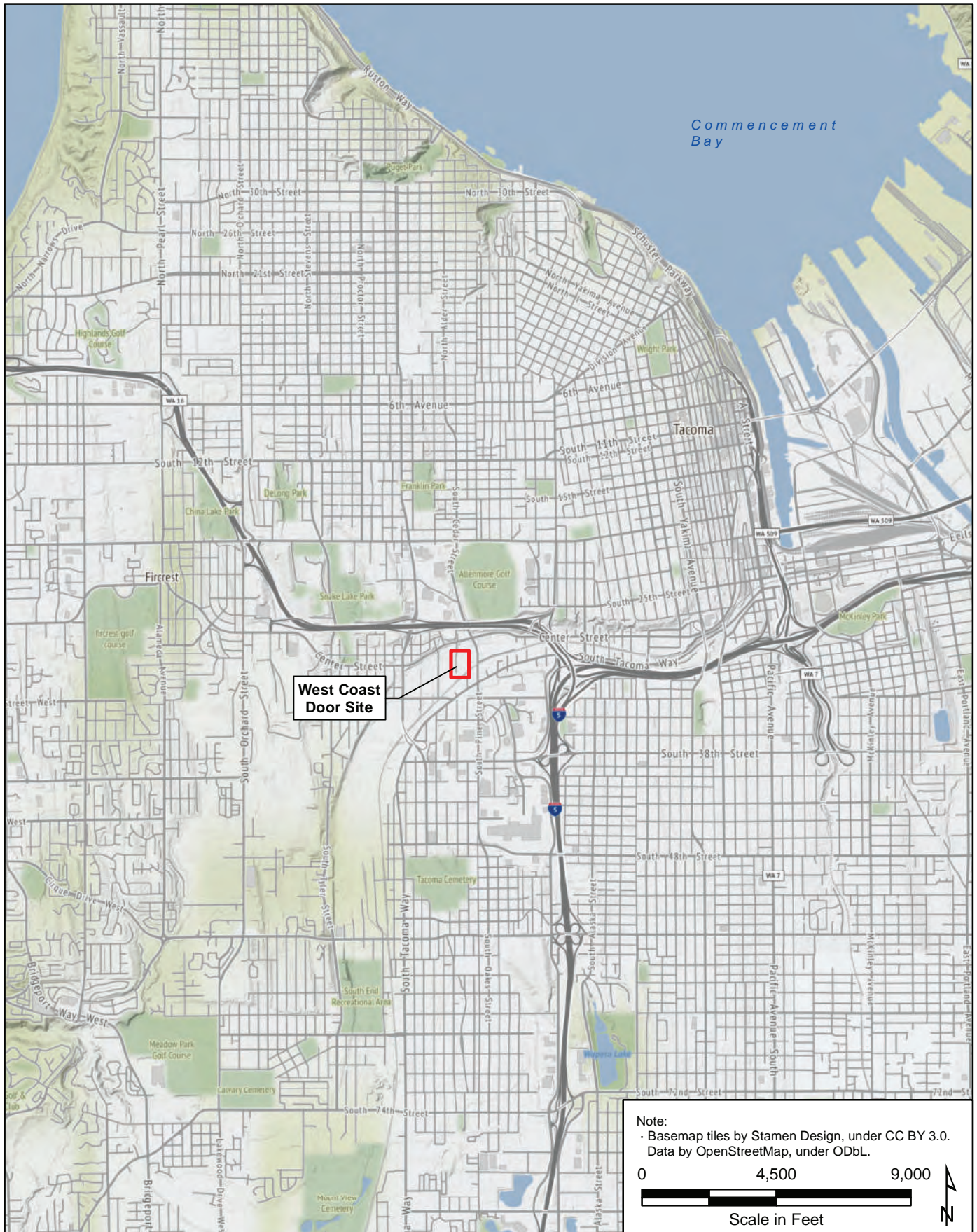


<div>FLOYD   SNIDER</div> <div>strategy ▪ science ▪ engineering</div>		PROJECT:	West Coast Door	LOCATION:	3102 S Cedar St, Tacoma WA	WELL ID:	MW-16
		LOGGED BY:	K. Anderson	COORDINATE SYSTEM:	NAVD 88	BORING LOCATION:	3102 S Cedar St, Tacoma WA
DRILLED BY:		ECOLOGY WELL ID:		NORTHING:		EASTING:	
Carlos Anguiano, Holt Services Inc.		BMP 496		698103.840424		1149371.002525	
DRILLING EQUIPMENT:		SCREENED INTERVAL (ft bgs):		GROUND SURFACE ELEV.:		TOC ELEVATION:	
Geoprobe		31-41		N/A		246.969599	
DRILLING METHOD:				TOTAL DEPTH (ft bgs):		DEPTH TO WATER (ft bgs):	
5' x 4" Rods				45		20	
SAMPLING METHOD:				BORING DIAMETER:		DRILL DATE:	
Split spoon/continuous				4" inner/6" outer		8/10/2020	
Depth (feet)	USCS Symbol	Description	Drive/ Recovery	Sample ID	Well Construction		
0	SW	Brown, well-graded gravelly SAND, dry.			<div>Protective Cover</div>		
	GP	Rounded GRAVEL.					
		Brown, well-graded SAND with large gravel and silt, no odor (FILL).			<div>Concrete Pad</div>		
	SW-SM						
4		Fine, rounded GRAVEL, dry.					
	GP						
		Gray-brown, well-graded SAND with abundant gravel, moist, no odor.					
	SW-SM						
8							
		Brown, poorly-graded medium SAND with rounded gravel, moist, no odor.					
12							
		At 16.5 feet bgs, becomes gray and contains few silty pockets.			<div>2" Sch. 40 PVC</div>		
	SP						
		At 20 feet bgs, sand slightly coarsens and becomes wet.					
20							
		Poorly-graded SAND with silt, no odor.			<div>Bentonite Chips</div>		
	SP-SM						
24							
		Gray-brown, well-graded SAND with abundant gravel and silt, wet, no odor.					
	SW-SM						
28							
		Dark gray, well-graded SAND with gravel and trace silt, wet, no odor.			<div>12-20 Silica Sand</div>		
	SW						
		Gray, poorly-graded fine SAND, wet, no odor.			<div>0.010-Slot PVC Screen</div>		
	SP						
36		Well-graded rounded GRAVEL.					
	GW						
		Gray, well-graded SAND with gravel, wet, naphthalene odor.					
	SW						
40		Gray, very fine silty SAND, slightly wet, no odor.					
	SM						
		Gray, sandy SILT.					
	ML						
44		At 44 feet bgs, gravel present and becomes brown.					
		Bottom of boring = 45 feet bgs.					
ABBREVIATIONS:			NOTES:				
ft bgs = feet below ground surface			Recovered intervals evenly decompressed for log unless otherwise noted.				
ppm = parts per million							
USCS = Unified Soil Classification System							
▼ = denotes groundwater table							

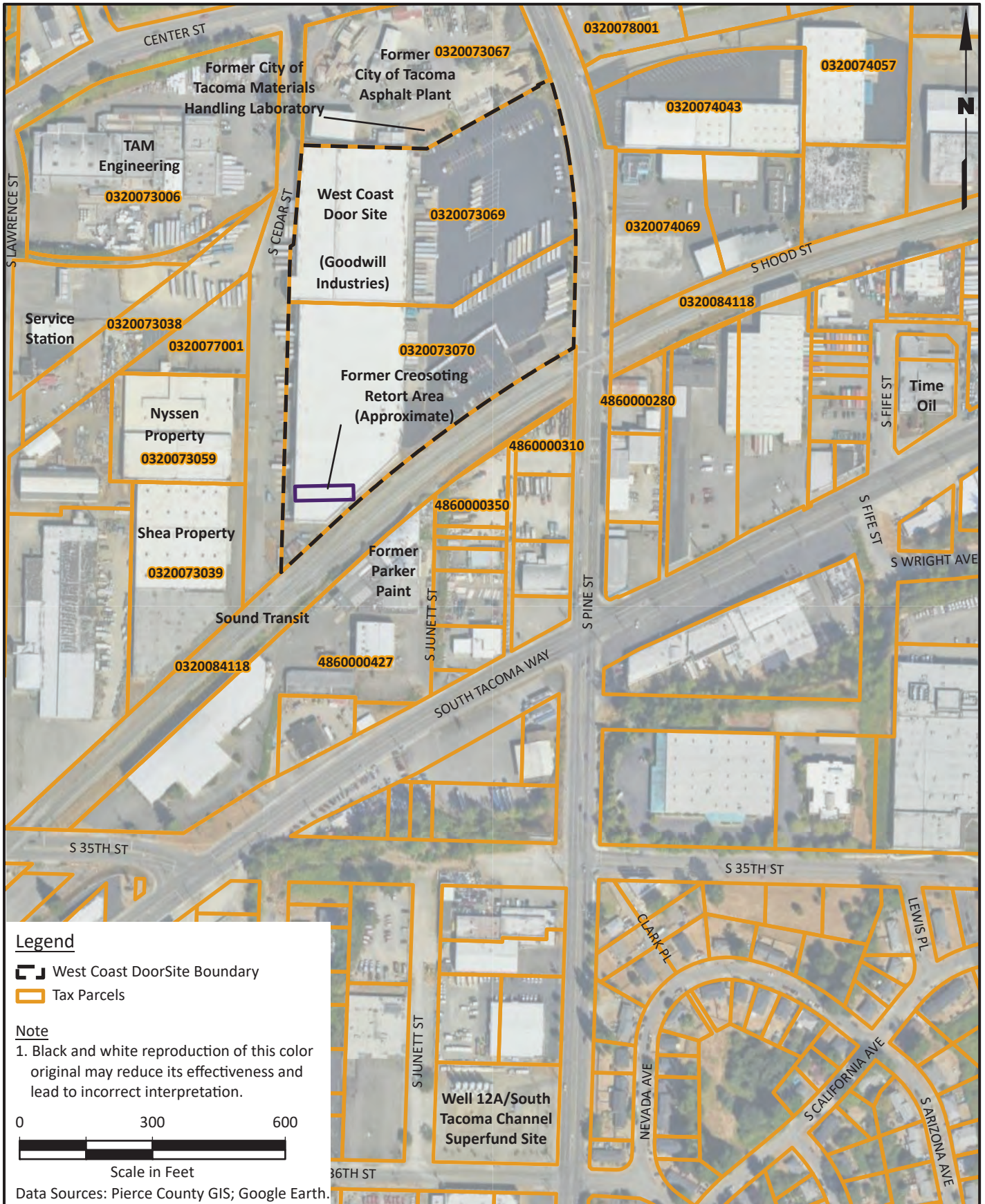
<div>FLOYD   SNIDER</div> <div>strategy • science • engineering</div>		PROJECT: West Coast Door	LOCATION: 3102 S Cedar St, Tacoma WA	WELL ID: MW-17	
		LOGGED BY: K. Anderson	COORDINATE SYSTEM: NAVD 88	BORING LOCATION: 3102 S Cedar St, Tacoma WA	
DRILLED BY: Carlos Anguiano, Holt Services Inc.		ECOLOGY WELL ID: BMP 497	NORTHING: 698190.94504	EASTING: 1149464.594229	
DRILLING EQUIPMENT: Geoprobe		SCREENED INTERVAL (ft bgs): 31-41	GROUND SURFACE ELEV.: N/A	TOC ELEVATION: 247.909904	
DRILLING METHOD: 5' x 4" Rods			TOTAL DEPTH (ft bgs): 50	DEPTH TO WATER (ft bgs): 21	
SAMPLING METHOD: Split spoon/continuous			BORING DIAMETER: 4" inner/6" outer	DRILL DATE: 8/10/2020	
Depth (feet)	USCS Symbol	Description	Drive/ Recovery	Sample ID	Well Construction
0	ASPHALT	2 inches of <b>ASPHALT</b> . Brown, well-graded <b>SAND</b> with abundant gravel and silt, moist, no odor.			<div>Protective Cover</div> <div>Concrete Pad</div> <div>2" Sch. 40 PVC</div> <div>Bentonite Chips</div> <div>12-20 Silica Sand</div> <div>0.010-Slot PVC Screen</div>
4	SW-SM	At 4 feet bgs, dry			
8	GW	Well-graded <b>GRAVEL</b> .			
	SW	Well-graded <b>SAND</b> with gravel and trace silt, slightly moist, no odor.			
12	SP	Brown, poorly-graded fine <b>SAND</b> with few gravel, moist.			
16	SW-SM	Gray-brown, well-graded <b>SAND</b> with abundant gravel and silt, moist, no odor.			
20		Gray-brown, poorly-graded medium <b>SAND</b> , moist, no odor.			
		At 21 feet bgs, becomes wet.			
24	SP				
28	SW-SM	Gray-brown, well-graded <b>SAND</b> with silt and gravel, moist, no odor.			
32	SP	Lens of poorly-graded coarse <b>SAND</b> .			
	SW-SM	Gray-brown, well-graded <b>SAND</b> with silt and gravel, moist, no odor.			
	SW	Well-graded <b>SAND</b> with gravel and trace silt, wet, no odor.			
36	SP	Poorly-graded fine <b>SAND</b> with gravel, moist to wet, slight naphthalene odor.			
		Sand coarsens and odor dissipates at 39 feet bgs.			
40	SM	Gray, fine silty <b>SAND</b> , wet, no odor.			
		Gray, well-graded gravelly <b>SAND</b> with trace silt, no odor.			
44		At 43 feet bgs, becomes brown.			
48	SW				
		Bottom of boring = 50 feet bgs.			
52					
ABBREVIATIONS: ft bgs = feet below ground surface    USCS = Unified Soil Classification System ppm = parts per million                ▼ = denotes groundwater table			NOTES: Recovered intervals evenly decompressed for log unless otherwise noted.		

## **Selected Remedial Investigation Figures**









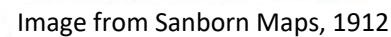
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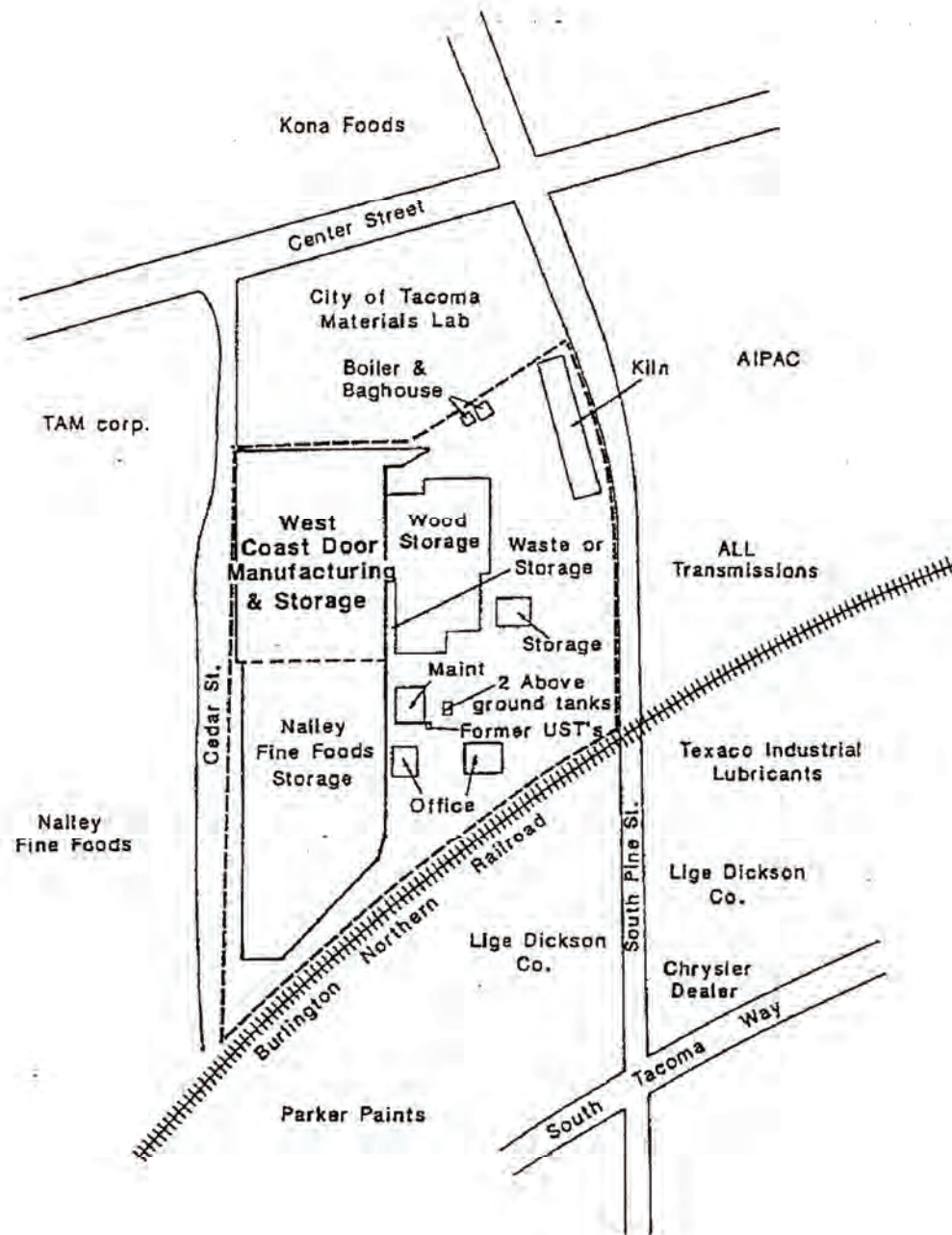


Remedial Investigation  
West Coast Door Site  
Tacoma, Washington

Figure 2.2  
Property Map







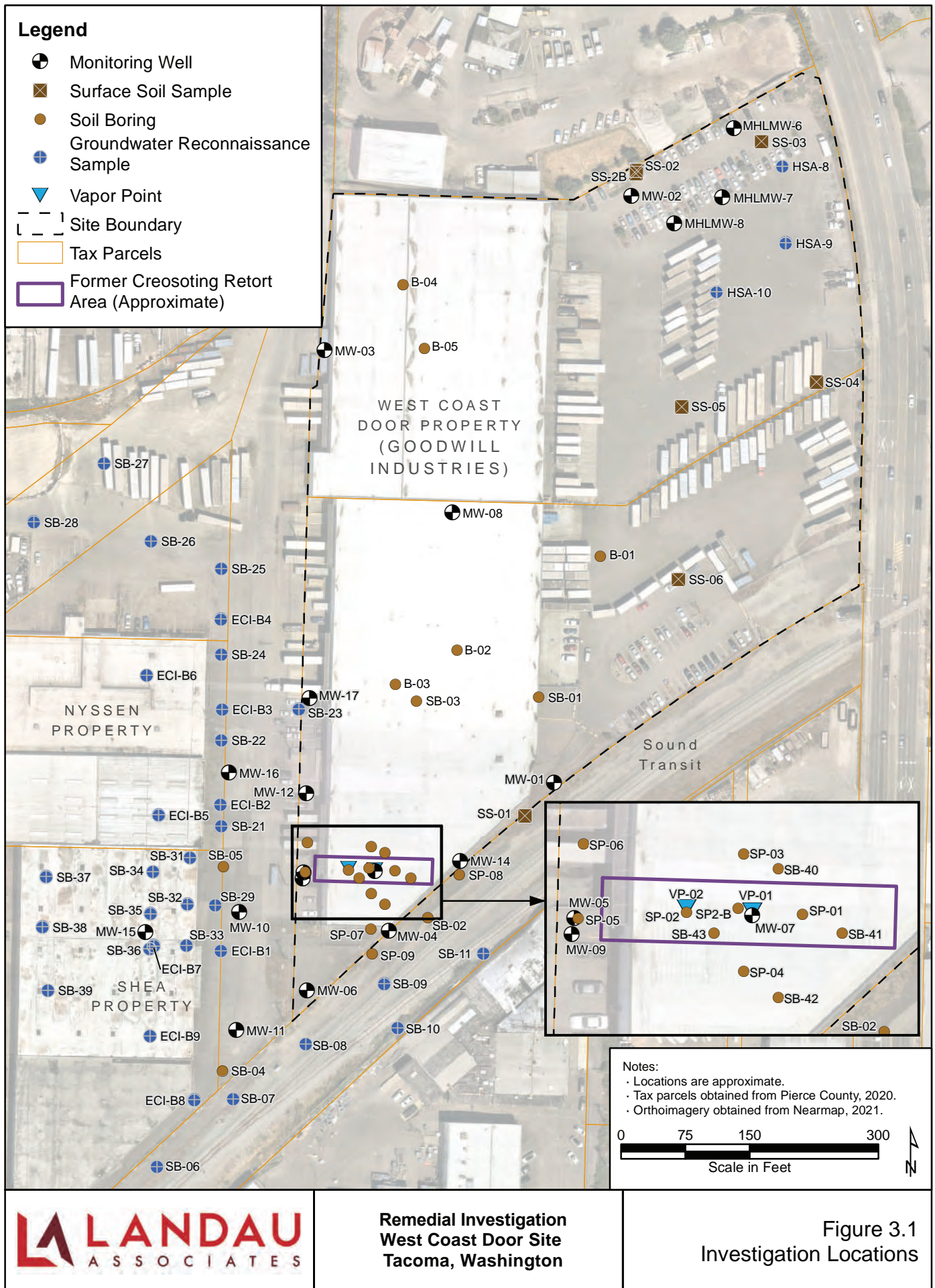
Note: Facility layout map reproduced from Phase I Environmental Audit, Applied Geotechnology Inc., October 1990.



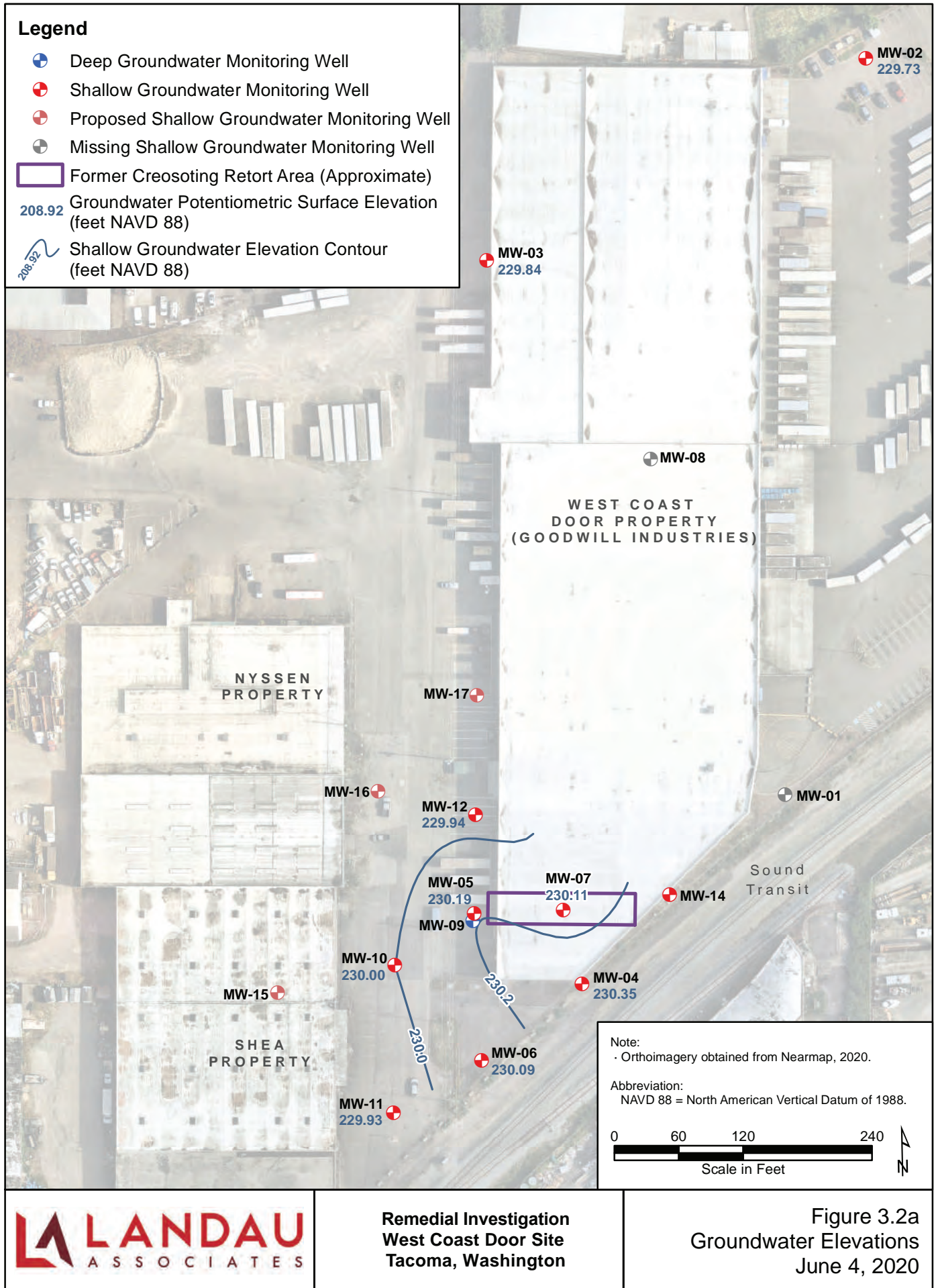
Remedial Investigation  
West Coast Door Site  
Tacoma, Washington

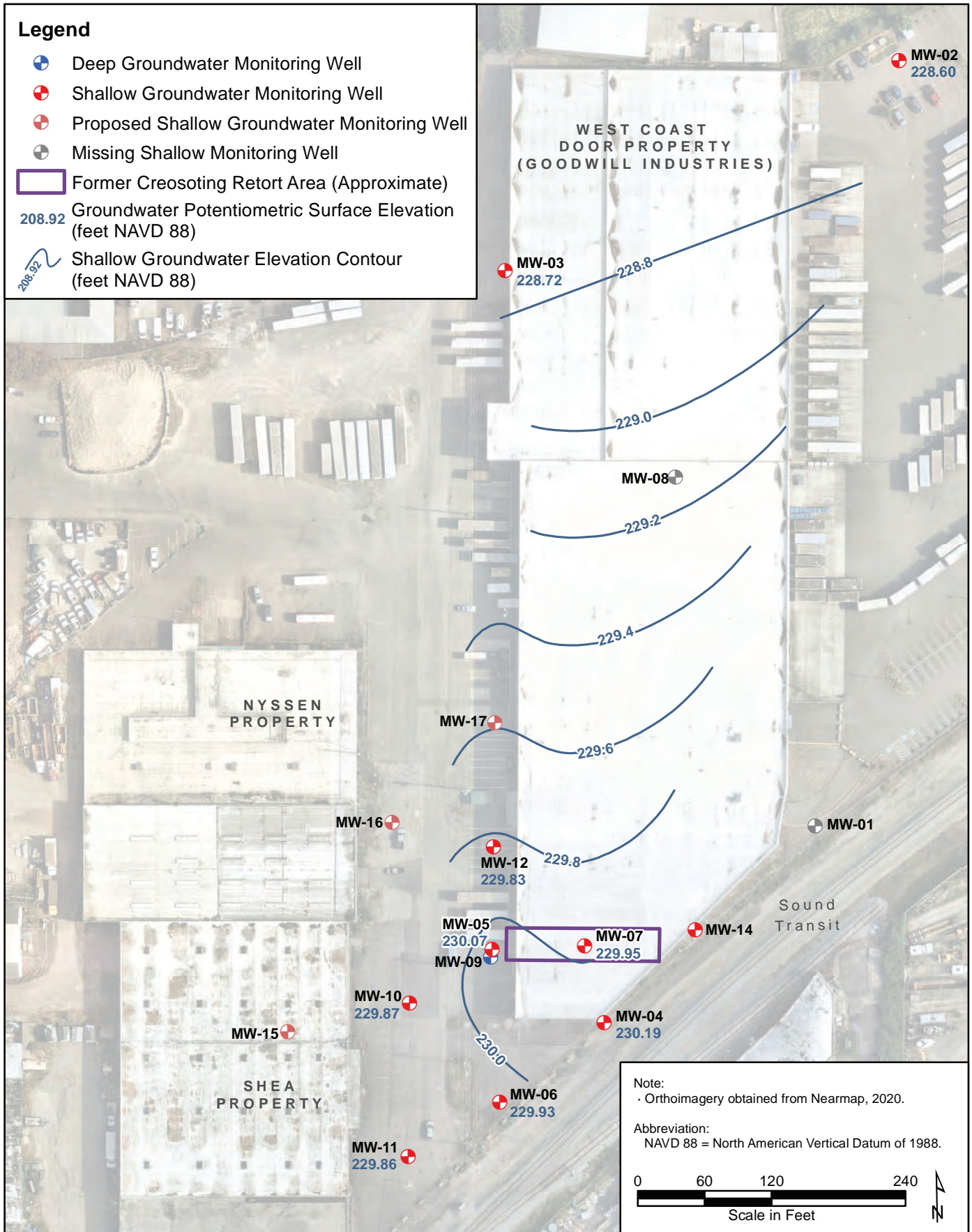
Figure 2.4  
Former West Coast Door  
Facility Operations



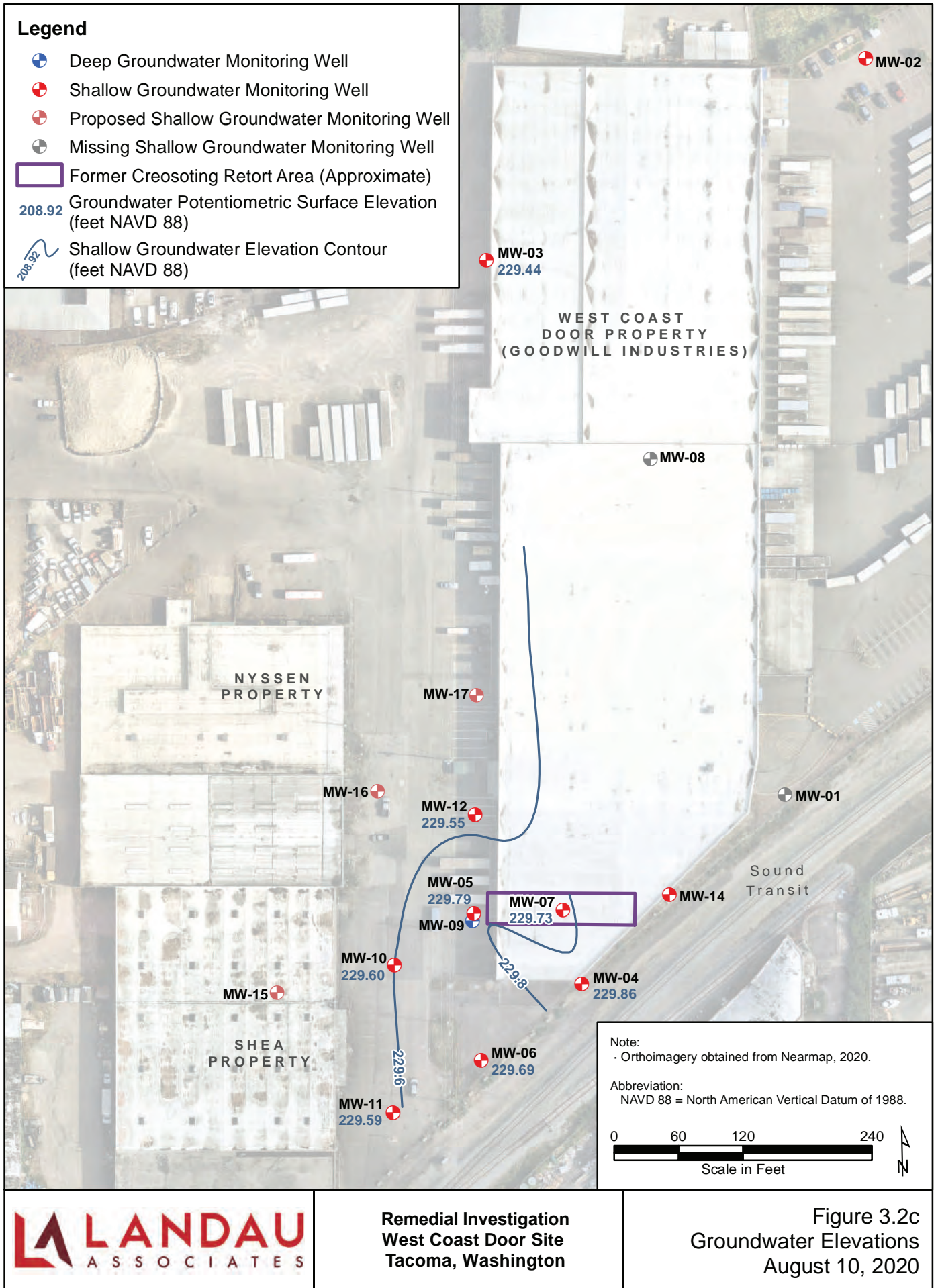








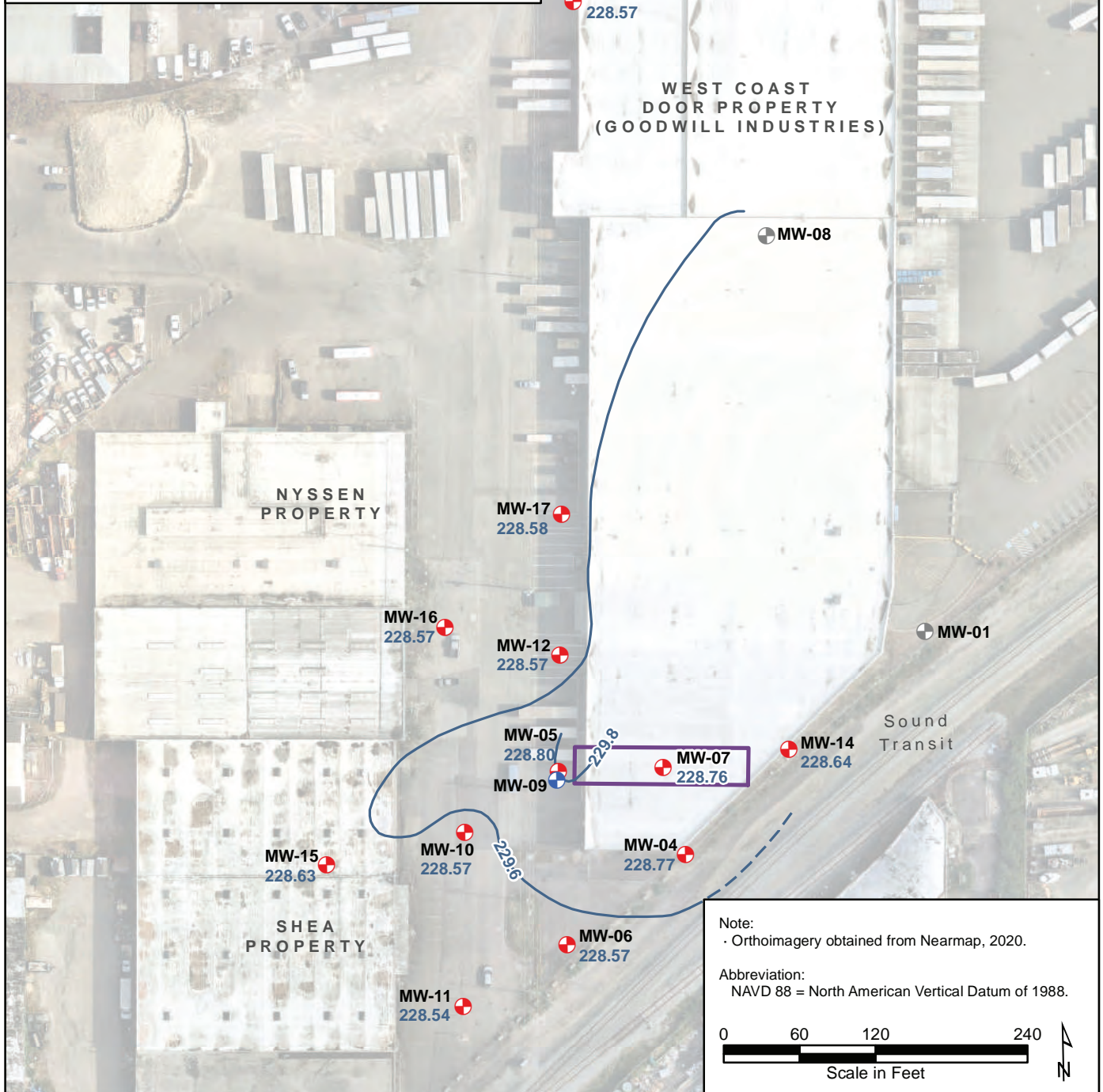
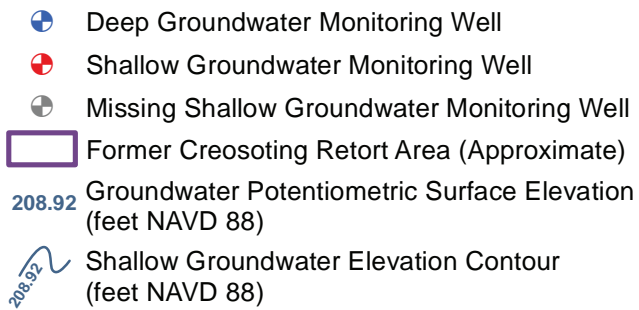




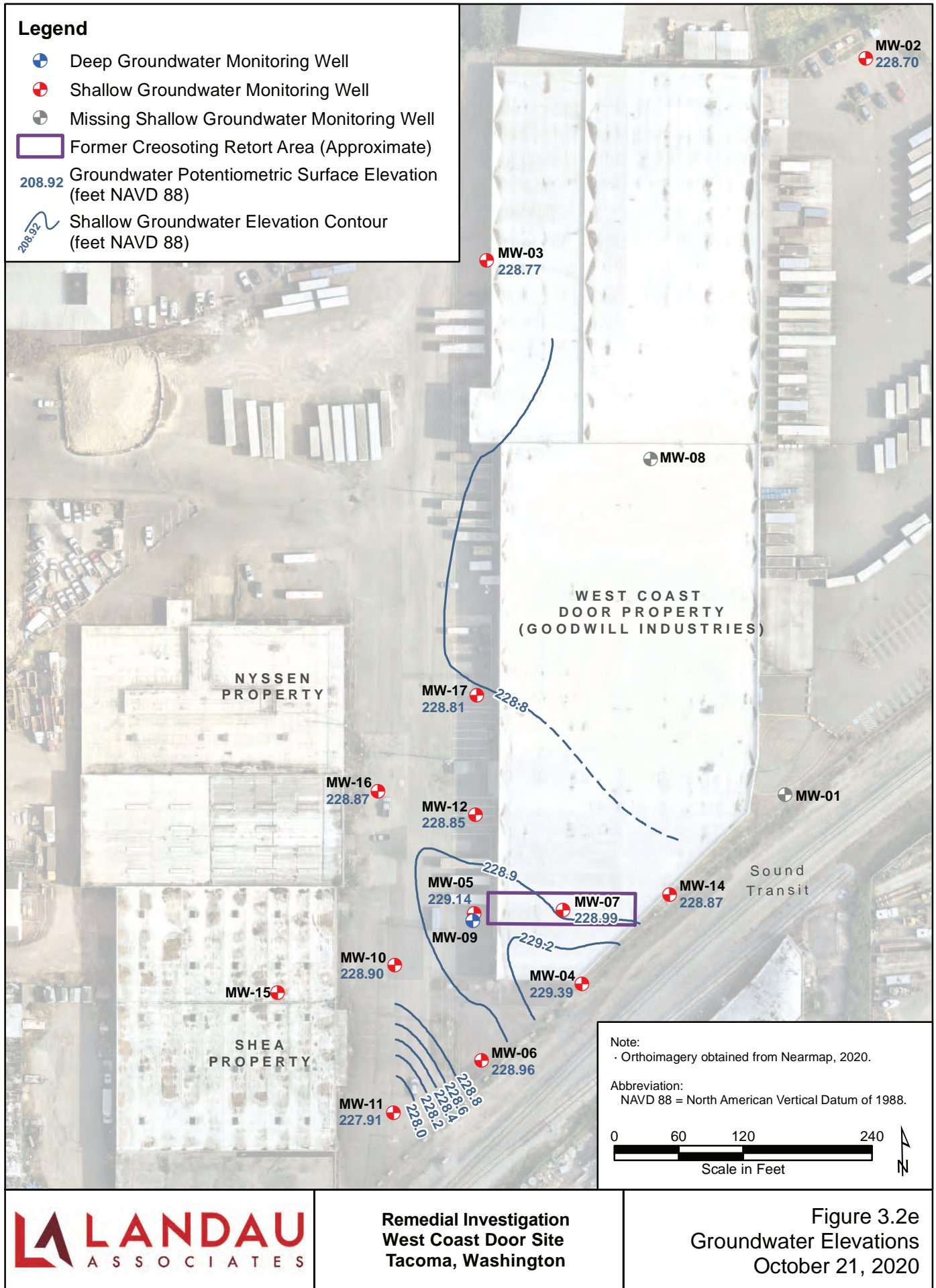
**Remedial Investigation  
West Coast Door Site  
Tacoma, Washington**

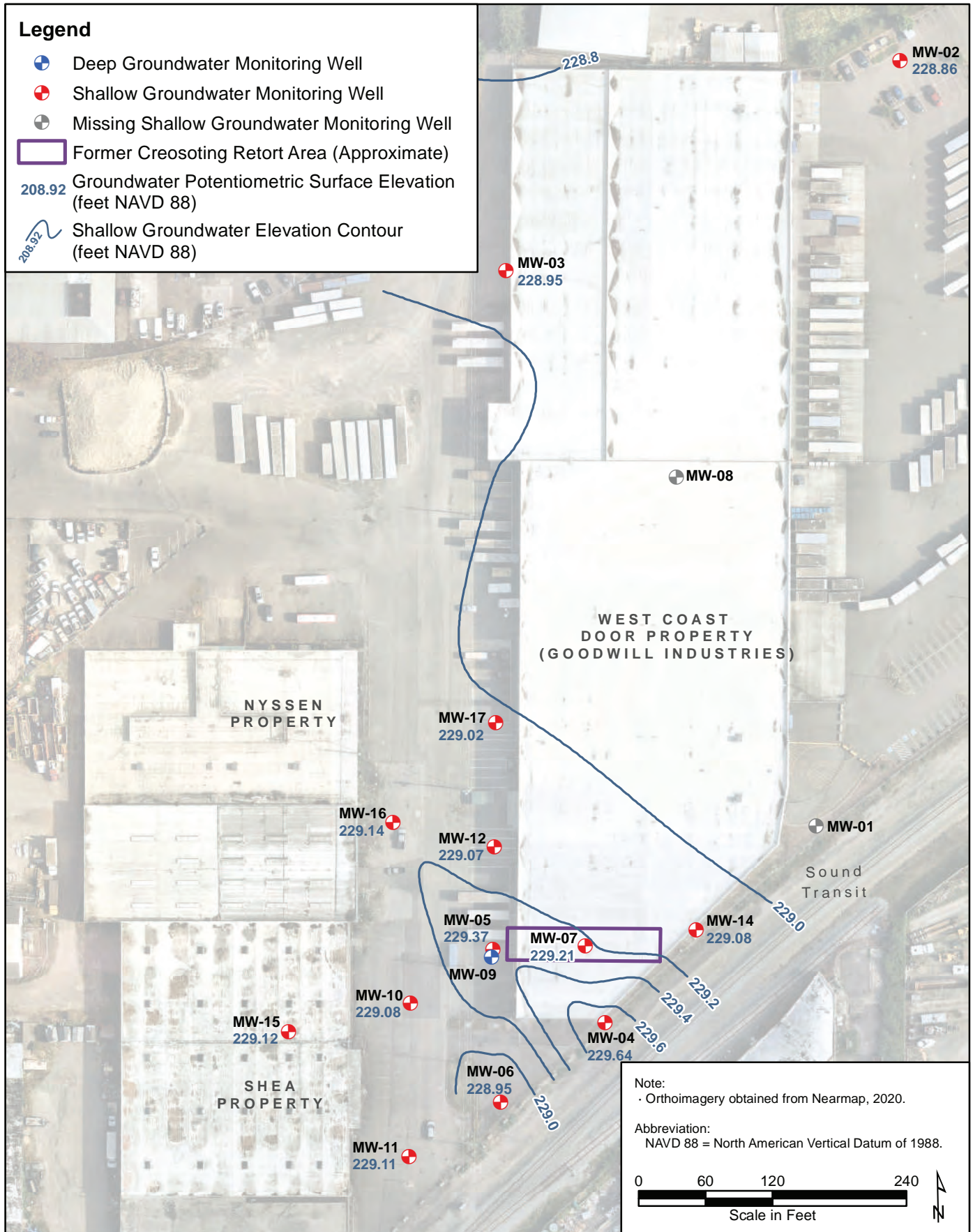
**Figure 3.2c  
Groundwater Elevations  
August 10, 2020**

### Legend

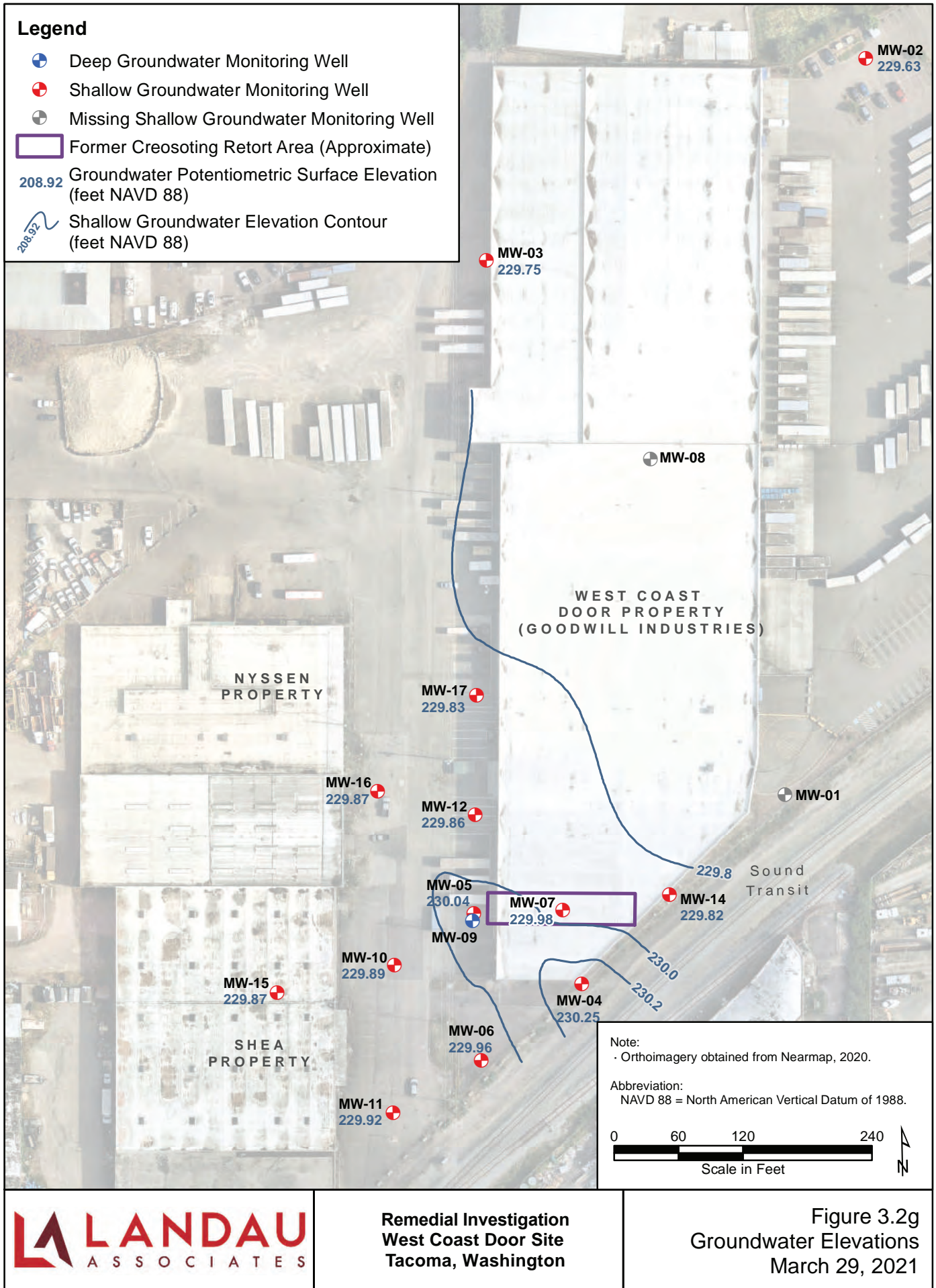




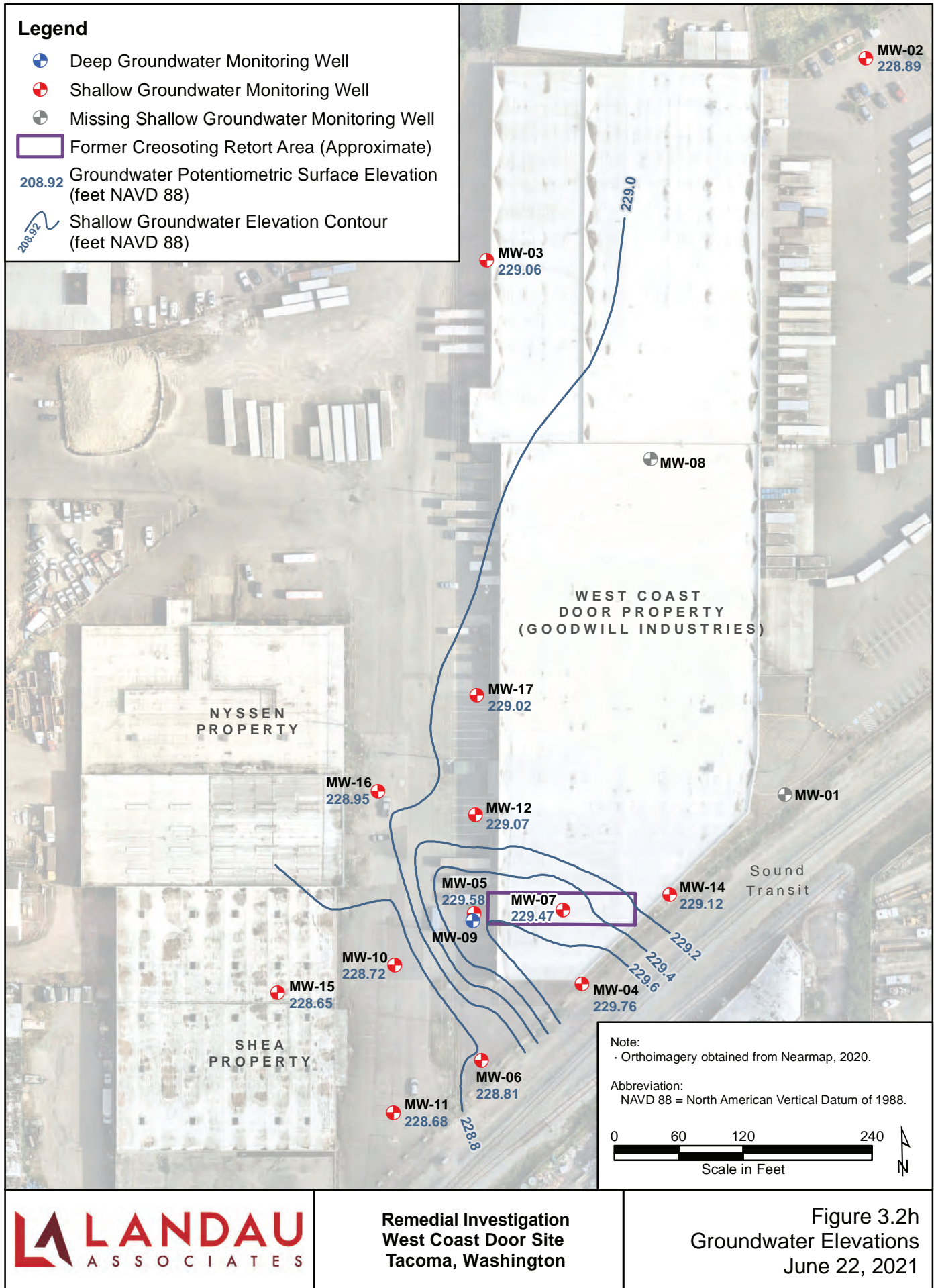








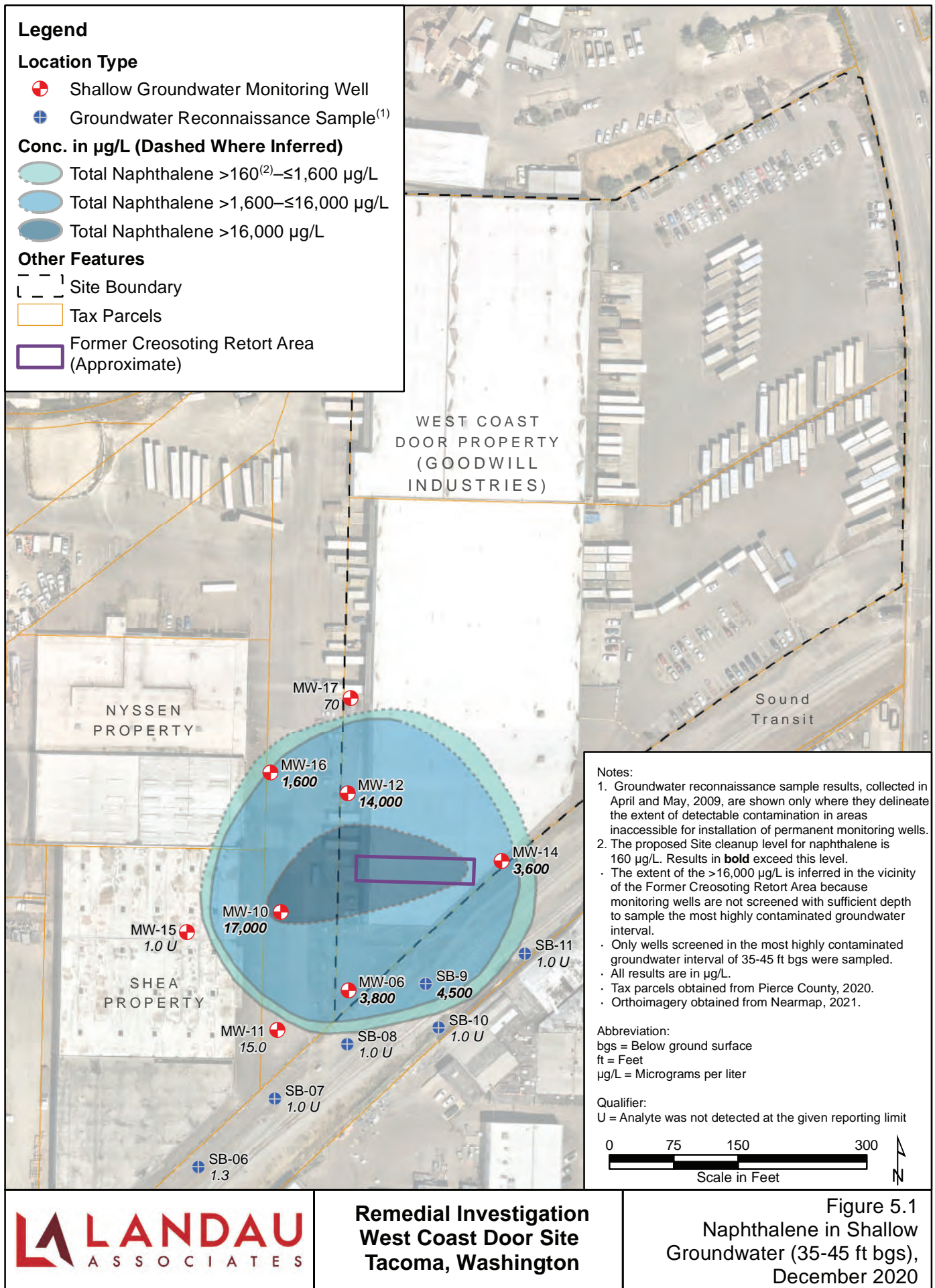




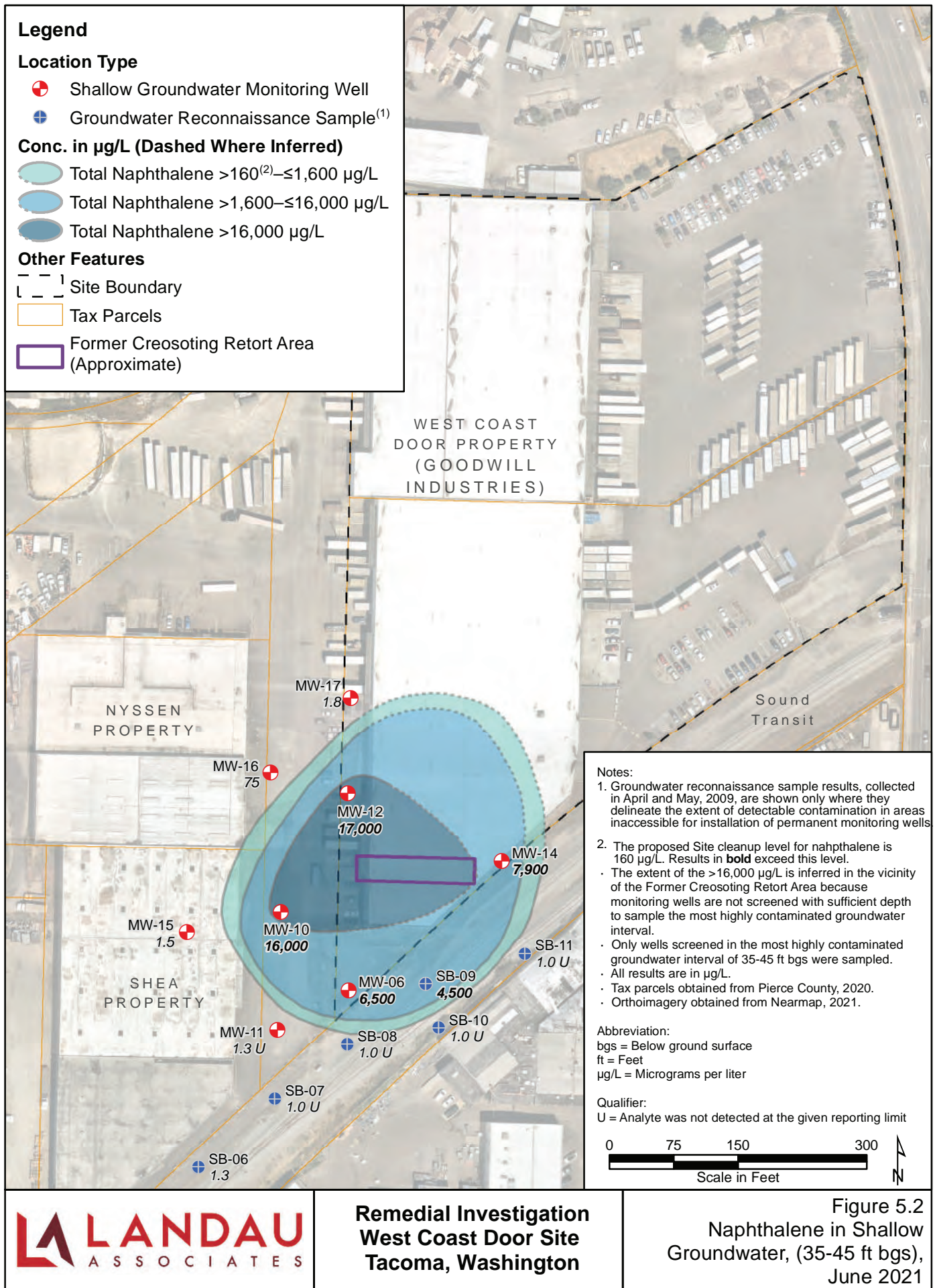
**Remedial Investigation  
West Coast Door Site  
Tacoma, Washington**

**Figure 3.2h  
Groundwater Elevations  
June 22, 2021**

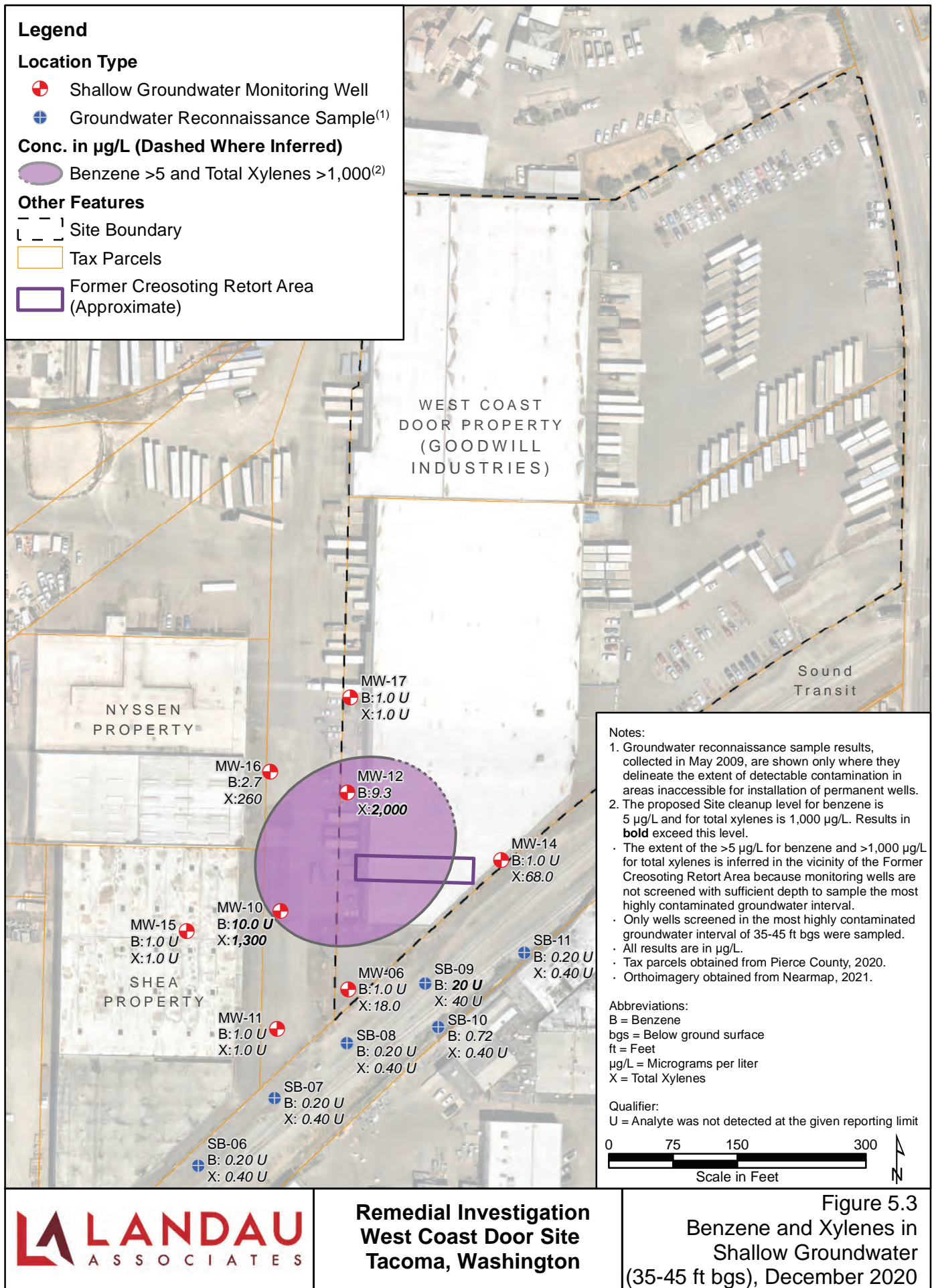




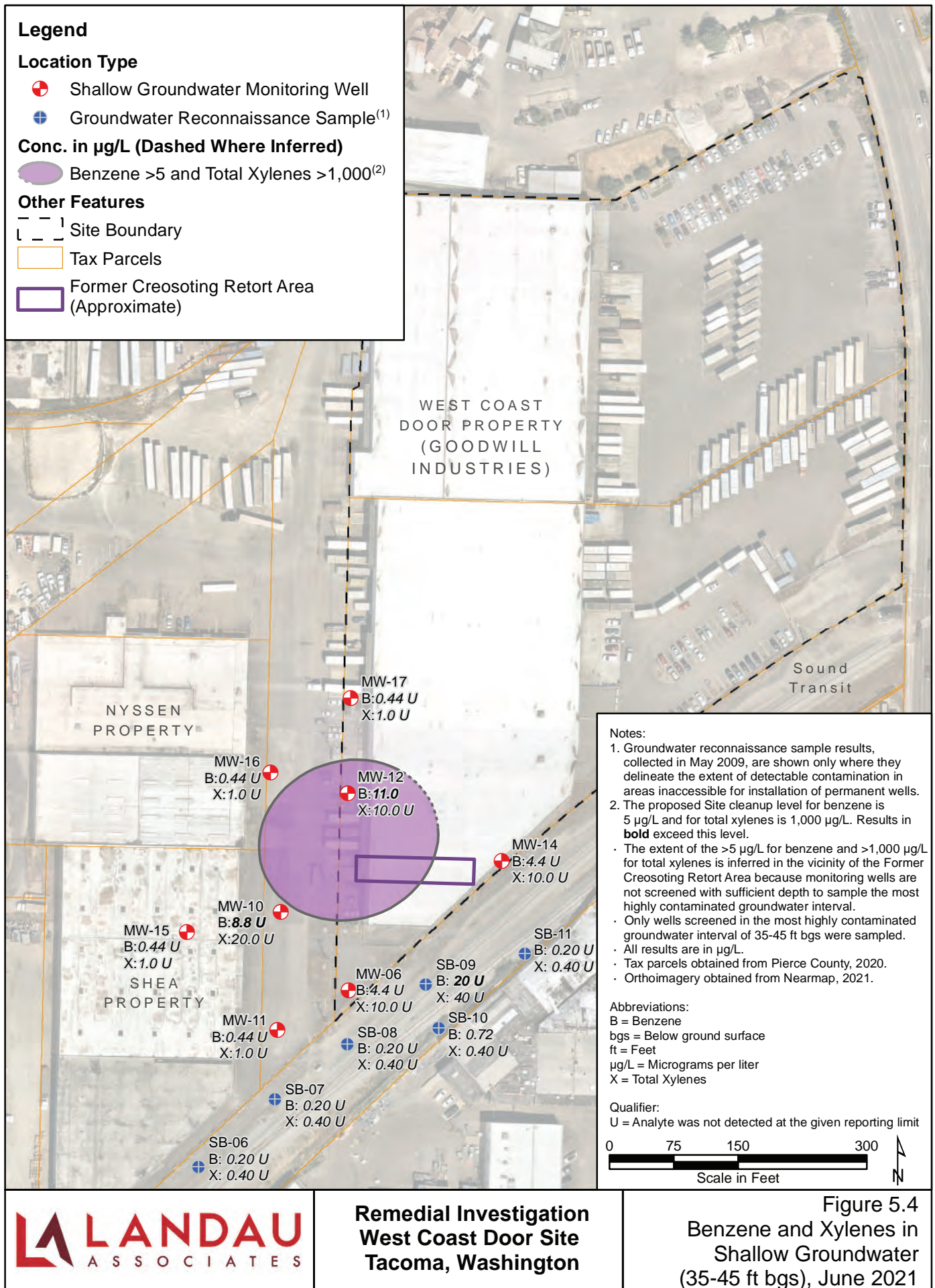




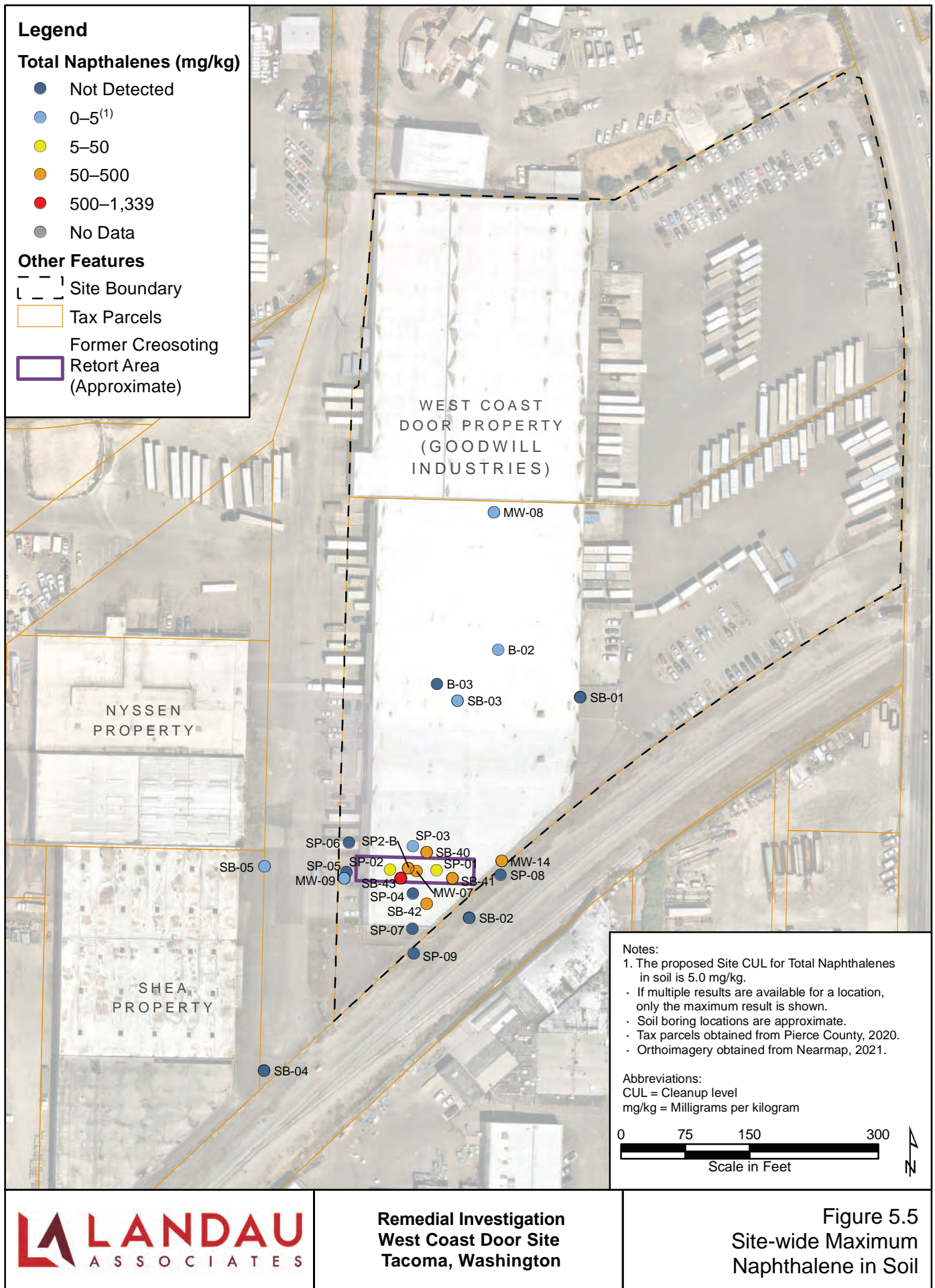




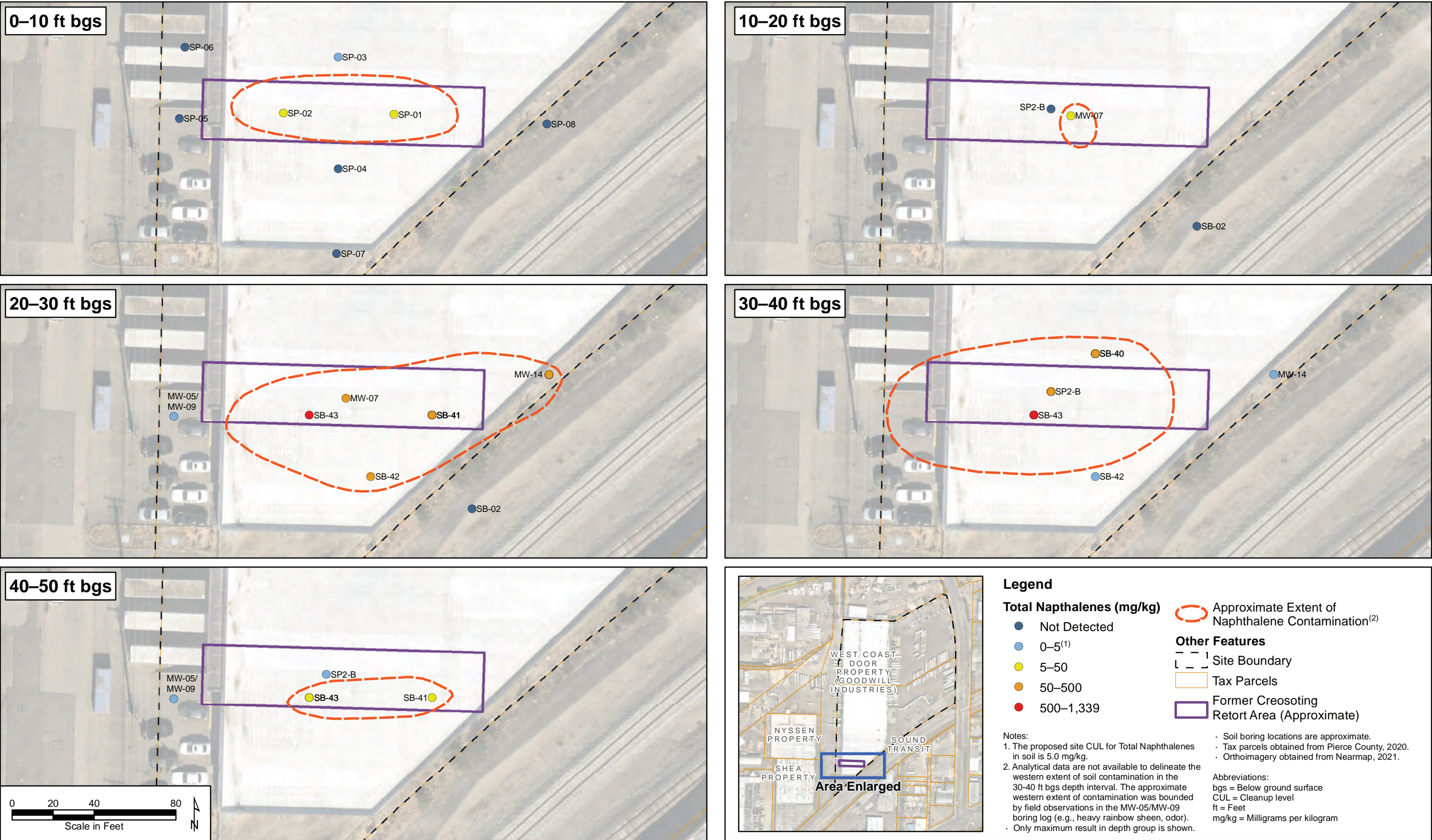








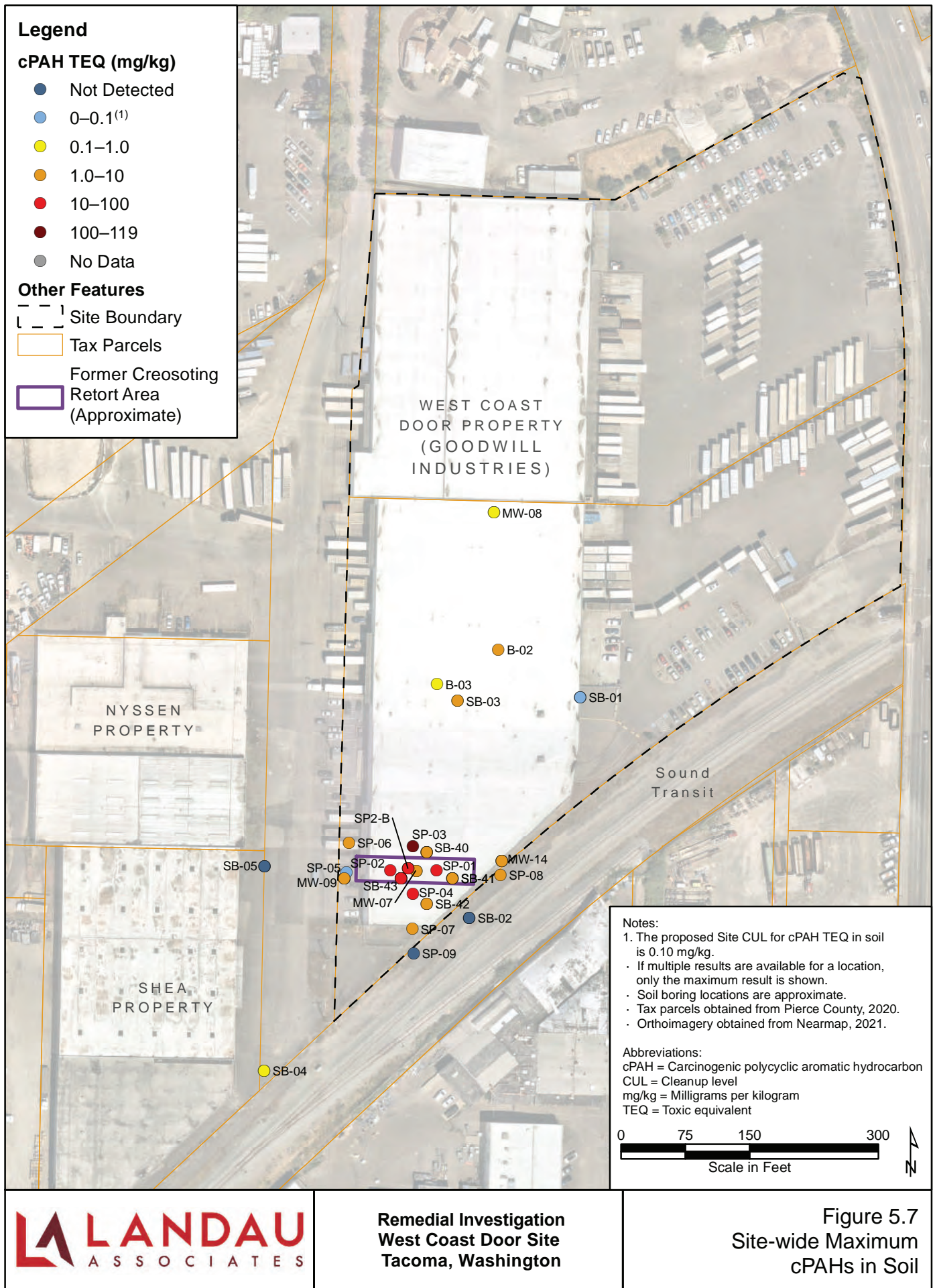




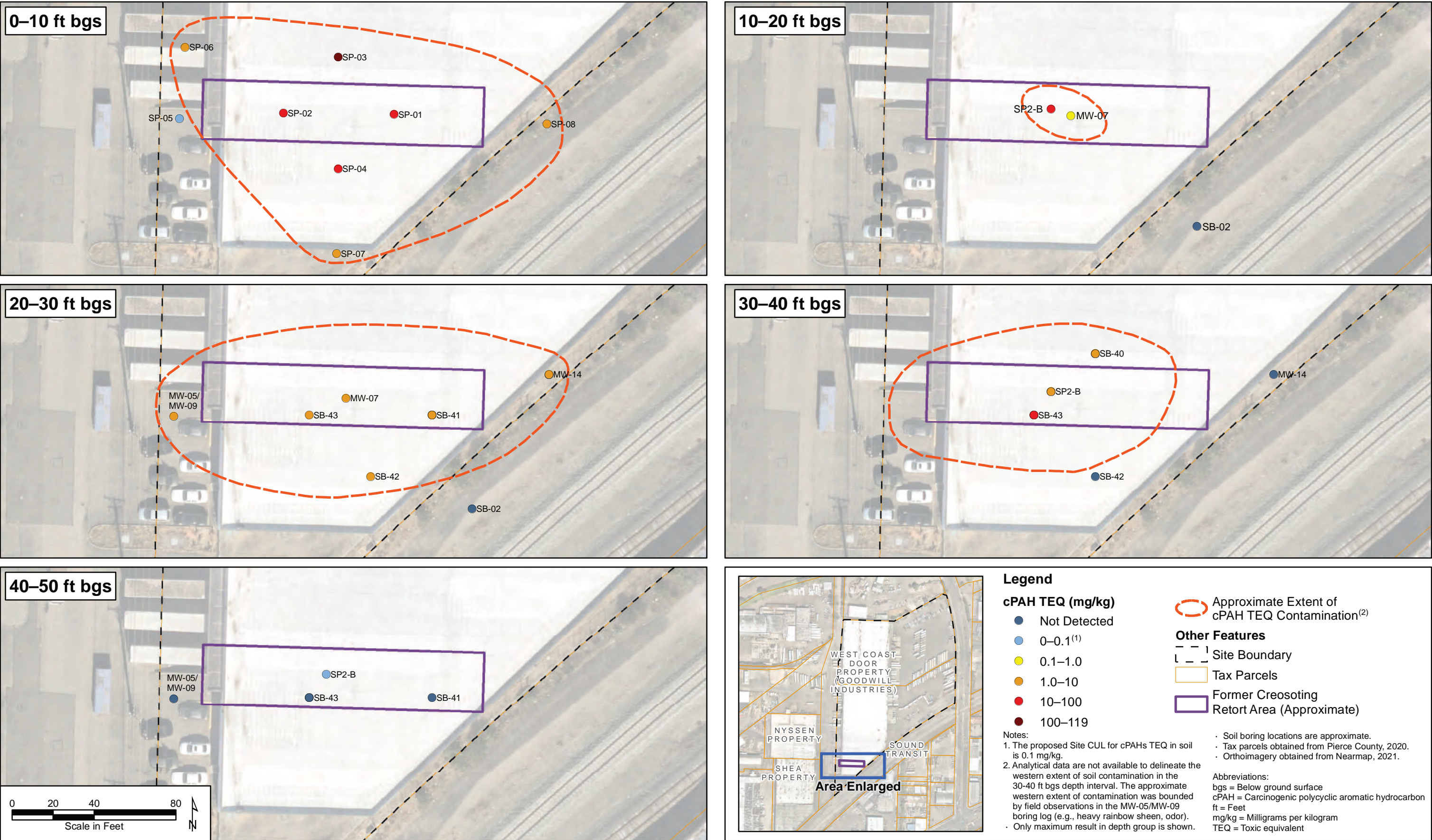
Remedial Investigation  
West Coast Door Site  
Tacoma, Washington

Figure 5.6  
Naphthalene in Soil in the Former Creosoting Retort Area

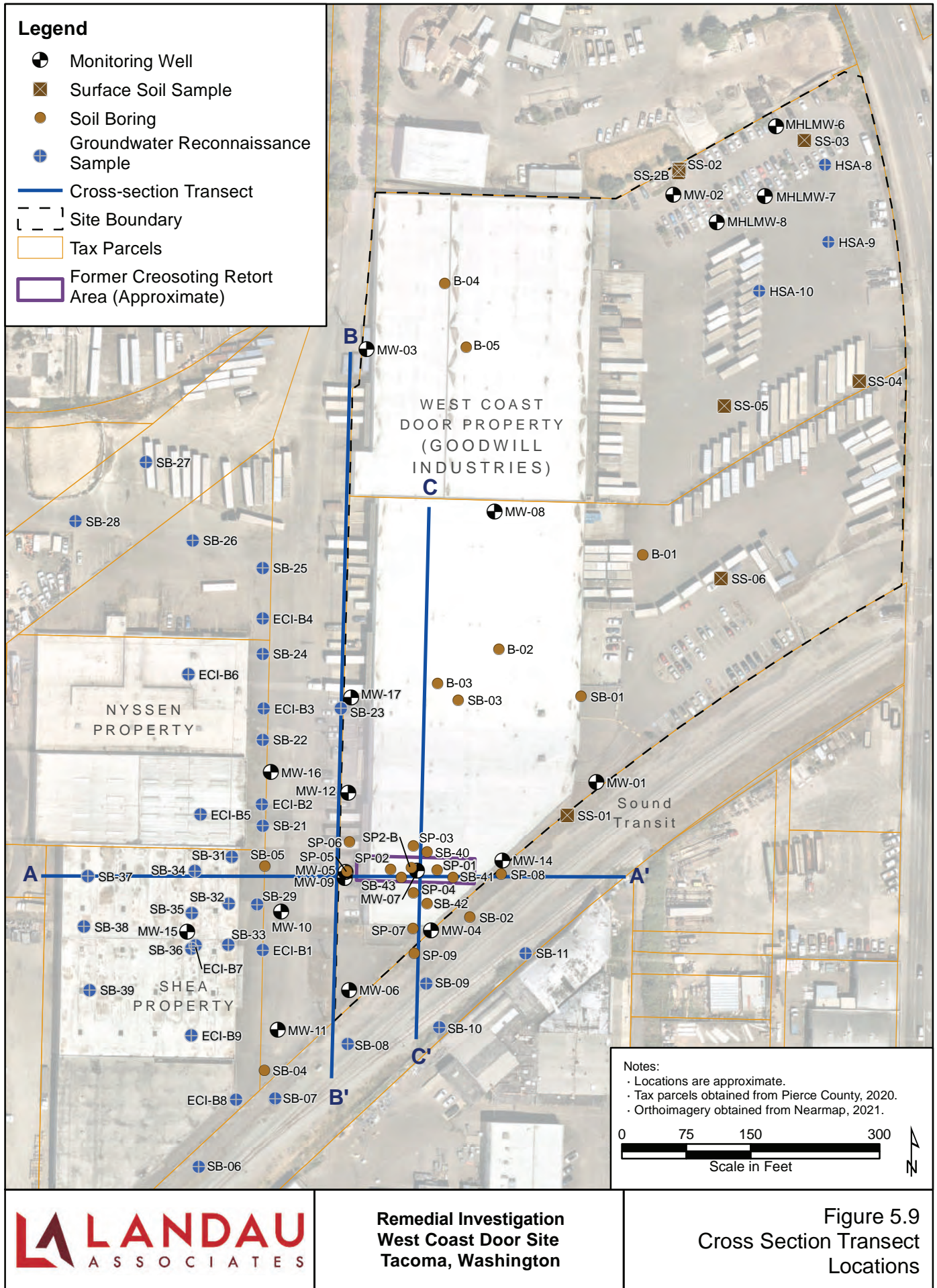


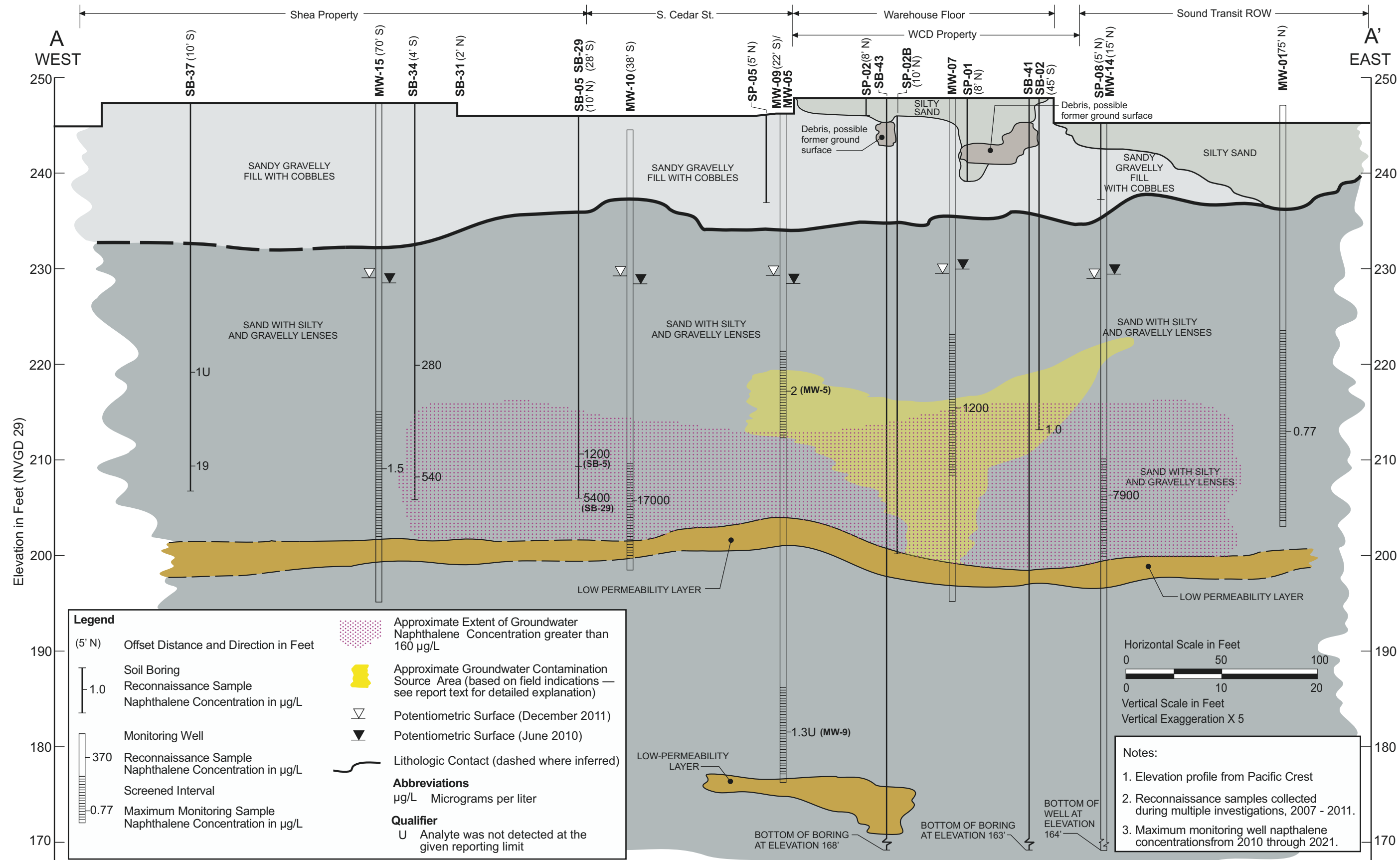








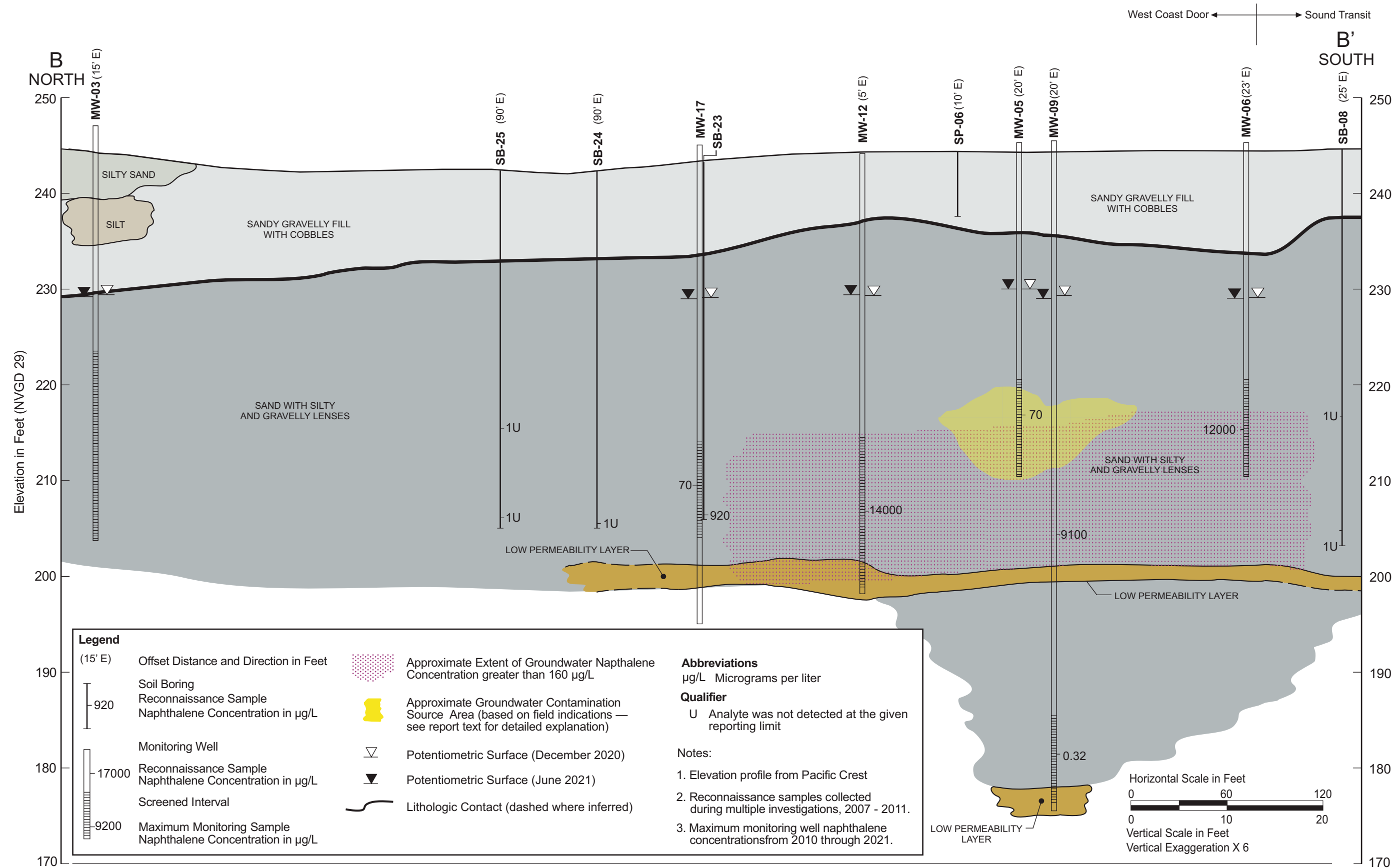




Remedial Investigation  
West Coast Door  
Tacoma, Washington

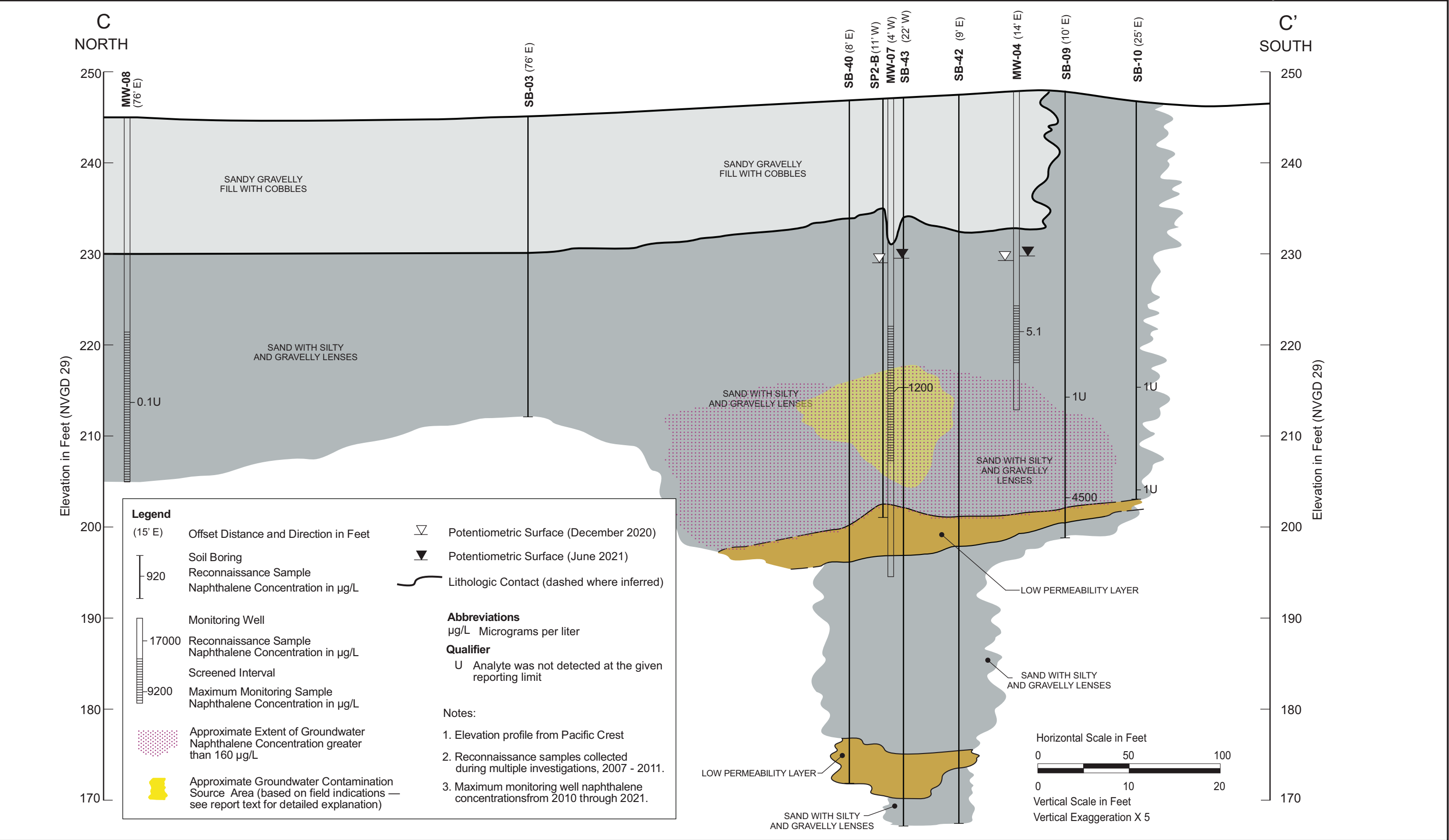
Figure 5.10  
Geologic Cross Section A-A' and  
Groundwater Contamination Source Area





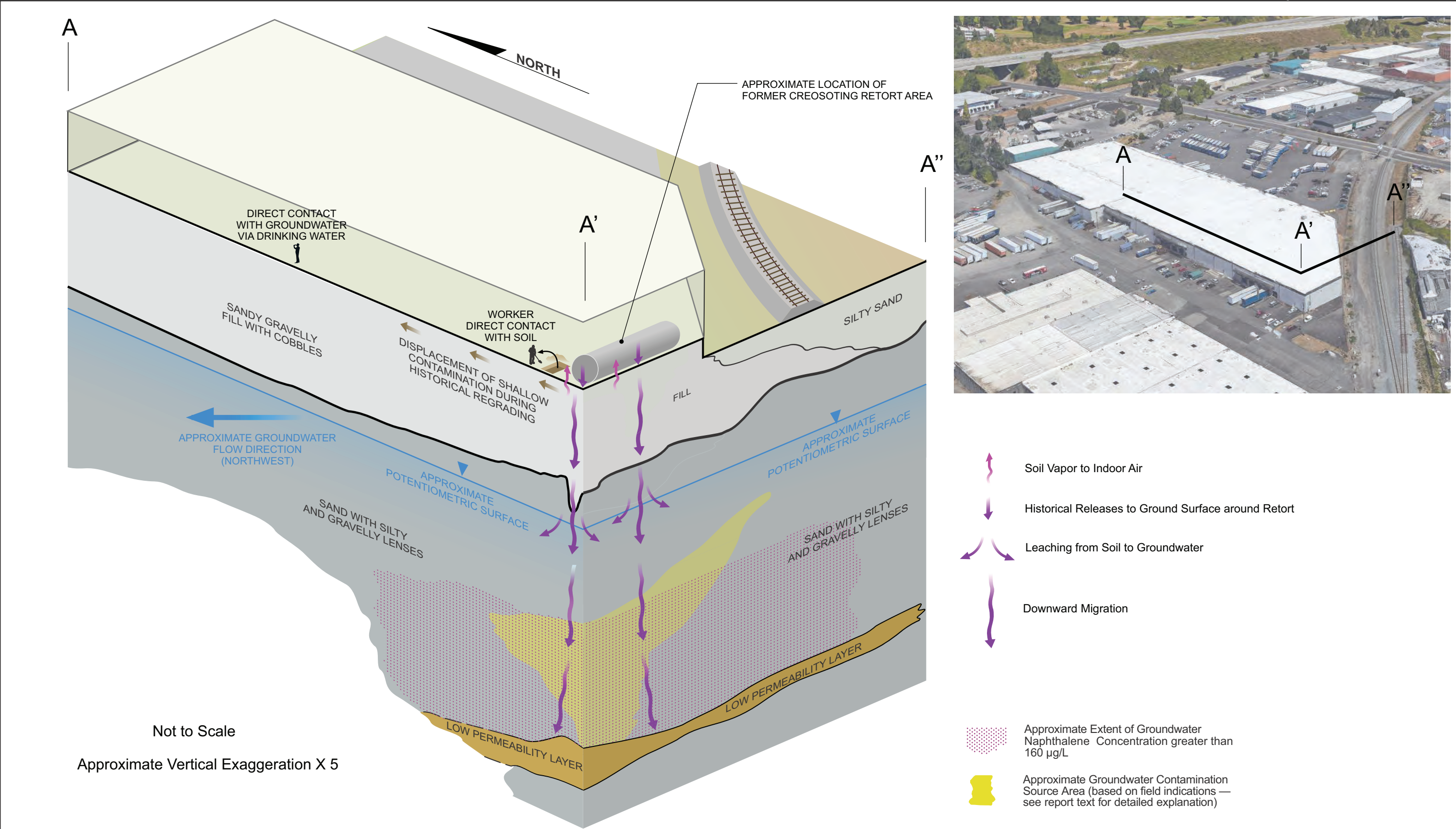
Remedial Investigation  
West Coast Door  
Tacoma, Washington

Figure 5.11  
Geologic Cross Section B-B' and  
Groundwater Contamination Source Area



Remedial Investigation  
West Coast Door  
Tacoma, Washington

Figure 5.12  
Geologic Cross Section C-C' and  
Groundwater Contamination Source Area



Remedial Investigation  
West Coast Door  
Tacoma, Washington

Figure 6.1  
Conceptual Site Model



## **Selected Remedial Investigation Tables**

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-01					MW-02	MW-04		
Sample Name			WCD-MW1-38	WCD-MW01-112712	WCD-MW01-030513	WCD-MW01-060413	WCD-MW01-100113	MW02-WL-03292021	WCD-MW4-33	WCD-MW04-120511	MW04-WL-03292021
Sample Date			6/22/2010	11/27/2012	3/5/2013	6/4/2013	10/1/2013	3/29/2021	6/21/2010	12/5/2011	3/29/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>									
<b>Semivolatile Organic Compounds</b>											
1-Methylnaphthalene	90-12-0	--		0.10 U							
2,4,5-Trichlorophenol	95-95-4	1,600									
2,4,6-Trichlorophenol	88-06-2	8.0									
2,4-Dichlorophenol	120-83-2	48							10 U		
2,4-Dimethylphenol	105-67-9	320							10 U		
2,4-Dinitrophenol	51-28-5	32							30 U		
2-Chloronaphthalene	91-58-7	--									
2-Chlorophenol	95-57-8	40							10 U		
2-Methylnaphthalene	91-57-6	--		0.10 U							
2-Methylphenol	95-48-7	800							10 U		
2-Nitrophenol	88-75-5	--							10 U		
3- & 4-Methylphenol	15831-10-4	800							10 U		
4,6-Dinitro-o-cresol	534-52-1	1.3							30 U		
4-Chloro-3-methylphenol	59-50-7	1,600									
4-Nitrophenol	100-02-7	1,600							10 U		
Acenaphthene	83-32-9	480		0.10 U					30		
Acenaphthylene	208-96-8	--		0.10 U							
Acrylonitrile	107-13-1	--			10 U	10 U	10 U			10 U	
Anthracene	120-12-7	2,400		0.10 U					1.3		
Benzo(a)anthracene	56-55-3	--	0.10 U	0.10 U					0.10 U		
Benzo(a)pyrene	50-32-8	--	0.10 U	0.10 U					0.10 U		
Benzo(b)fluoranthene	205-99-2	--	0.10 U	0.10 U					0.10 U		
Benzo(g,h,i)perylene	191-24-2	--		0.10 U							
Benzo(k)fluoranthene	207-08-9	--	0.10 U	0.10 U					0.10 U		
Benzoic acid	65-85-0	--							100 U		
Benzyl alcohol	100-51-6	--							1.0 U		
Bis(2-chloroethoxy)methane	111-91-1	--							1.0 U		
Bis(2-ethylhexyl)phthalate	117-81-7	--									
Butyl benzyl phthalate	85-68-7	--							1.0 U		
Carbazole	86-74-8	--							2.8		
Chrysene	218-01-9	--	0.10 U	0.10 U					0.10 U		
Dibenzo(a,h)anthracene	53-70-3	--	0.10 U	0.10 U					0.10 U		
Indeno(1,2,3-c,d)pyrene	193-39-5	--	0.10 U	0.10 U					0.10 U		
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	0.10 U	0.10 U					0.10 U		
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	0.10 U	0.10 U					0.10 U		
Dibenzofuran	132-64-9	--							13		
Diethylphthalate	84-66-2	--							1.0 U		
Dimethyl phthalate	131-11-3	--									
Di-n-butyl phthalate	84-74-2	--							1.0 U		
Di-n-octyl phthalate	117-84-0	--									
Fluoranthene	206-44-0	640		0.10 U					1.8		
Fluorene	86-73-7	320		0.10 U					6.5		
Hexachlorobutadiene	87-68-3	--		1.0 U	2.0 U	2.0 U	2.0 U		1.0 U	2.0 U	
Hexachlorocyclopentadiene	77-47-4	--									
Isophorone	78-59-1	--							1.0 U		
Naphthalene	91-20-3	160 <sup>(3)</sup>	0.77 <sup>(3)</sup>	0.10 U <sup>(4)</sup>	2.0 U <sup>(3)</sup>	2.0 U <sup>(3)</sup>	2.0 U <sup>(3)</sup>		5.1	4.8 <sup>(3)</sup>	
N-Nitroso-di-n-propylamine	621-64-7	--							1.0 U		
N-Nitrosodiphenylamine	86-30-6	--							1.0 U		
Pentachlorophenol	87-86-5	1.0							10 U		



Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-01					MW-02	MW-04		
Sample Name			WCD-MW1-38	WCD-MW01-112712	WCD-MW01-030513	WCD-MW01-060413	WCD-MW01-100113	MW02-WL-03292021	WCD-MW4-33	WCD-MW04-120511	MW04-WL-03292021
Sample Date			6/22/2010	11/27/2012	3/5/2013	6/4/2013	10/1/2013	3/29/2021	6/21/2010	12/5/2011	3/29/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>									
<b>Semivolatile Organic Compounds (cont.)</b>											
Phenanthrene	85-01-8	--		0.10 U					4.6		
Phenol	108-95-2	4,800							10 U		
Pyrene	129-00-0	240		0.10 U					1.2		
Total Naphthalenes	--	160		0.10 U							
<b>Volatile Organic Compounds</b>											
1,1,1,2-Tetrachloroethane	630-20-6	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,1,1-Trichloroethane	71-55-6	200		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,1,2,2-Tetrachloroethane	79-34-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,1,2-Trichloroethane	79-00-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,1-Dichloroethane	75-34-3	7.7		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,1-Dichloroethene	75-35-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,1-Dichloropropene	563-58-6	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,2,3-Trichlorobenzene	87-61-6	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,2,3-Trichloropropane	96-18-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,2,4-Trichlorobenzene	120-82-1	--		1.0 U	2.0 U	2.0 U	2.0 U		1.0 U	2.0 U	
1,2,4-Trimethylbenzene	95-63-6	80		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,2-Dibromo-3-chloropropane	96-12-8	--		1.0 U	10 U	10 U	10 U			10 U	
1,2-Dibromoethane	106-93-4	--		1.0 U	0.010 U	0.010 U	0.010 U			0.010 U	
1,2-Dichlorobenzene	95-50-1	--		1.0 U	2.0 U	2.0 U	2.0 U		1.0 U	2.0 U	
1,2-Dichloroethane	107-06-2	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,2-Dichloropropane	78-87-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,3,5-Trimethylbenzene	108-67-8	80		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,3-Dichlorobenzene	541-73-1	--		1.0 U	2.0 U	2.0 U	2.0 U		1.0 U	2.0 U	
1,3-Dichloropropane	142-28-9	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
1,4-Dichlorobenzene	106-46-7	--		1.0 U	2.0 U	2.0 U	2.0 U		1.0 U	2.0 U	
2,2-Dichloropropane	594-20-7	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
2,4-Dinitrotoluene	121-14-2	--							1.0 U		
2,6-Dinitrotoluene	606-20-2	--									
2-Chlorotoluene	95-49-8	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
2-Hexanone	591-78-6	--		1.0 U	10 U	10 U	10 U			10 U	
2-Nitroaniline	88-74-4	--									
3-Nitroaniline	99-09-2	--							3.0 U		
4-Chloroaniline	106-47-8	--									
4-Chlorophenyl phenyl ether	7005-72-3	--							1.0 U		
4-Chlorotoluene	106-43-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
4-Nitroaniline	100-01-6	--							10 U		
Acetone	67-64-1	--		10 U	25 U	25 U	25 U			25 U	
Benzene	71-43-2	5.0		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Bis(2-chloroethyl)ether	111-44-4	--							1.0 U		
Bis(2-chloroisopropyl)ether	39638-32-9	--							1.0 U		
Bromobenzene	108-86-1	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Bromochloromethane	74-97-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Bromodichloromethane	75-27-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Bromoform	75-25-2	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Bromomethane	74-83-9	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Carbon disulfide	75-15-0	--			2.0 U	2.0 U	2.0 U			2.0 U	
Carbon tetrachloride	56-23-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Chlorobenzene	108-90-7	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Chloroethane	75-00-3	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Chloroform	67-66-3	70		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-01					MW-02	MW-04		
Sample Name			WCD-MW1-38	WCD-MW01-112712	WCD-MW01-030513	WCD-MW01-060413	WCD-MW01-100113	MW02-WL-03292021	WCD-MW4-33	WCD-MW04-120511	MW04-WL-03292021
Sample Date			6/22/2010	11/27/2012	3/5/2013	6/4/2013	10/1/2013	3/29/2021	6/21/2010	12/5/2011	3/29/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>									
<b>Volatile Organic Compounds (cont.)</b>											
Chloromethane	74-87-3	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
cis-1,2-Dichloroethene	156-59-2	70		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
cis-1,3-Dichloropropene	10061-01-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Cymene	99-87-6	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Dibromochloromethane	124-48-1	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Dibromomethane	74-95-3	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Dichlorodifluoromethane	75-71-8	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Ethylbenzene	100-41-4	700		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Hexachlorobenzene	118-74-1	--							1.0 U		
Hexachloroethane	67-72-1	--							1.0 U		
Isopropylbenzene	98-82-8	800		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Methyl ethyl ketone	78-93-3	--		10 U	10 U	10 U	10 U			10 U	
Methyl isobutyl ketone	108-10-1	640		1.0 U	10 U	10 U	10 U			10 U	
Methylene chloride	75-09-2	--		1.0 U	5.0 U	5.0 U	5.0 U			5.0 U	
Methyl-tert-butyl ether	1634-04-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
n-Butylbenzene	104-51-8	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Nitrobenzene	98-95-3	--							1.0 U		
n-Propylbenzene	103-65-1	800		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
sec-Butylbenzene	135-98-8	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Styrene	100-42-5	100	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U		1.0 U	2.0 U	
tert-Butylbenzene	98-06-6	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Tetrachloroethene	127-18-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Toluene	108-88-3	1,000		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
trans-1,2-Dichloroethene	156-60-5	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
trans-1,3-Dichloropropene	10061-02-6	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Trichloroethene	79-01-6	5.0		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Trichlorofluoromethane	75-69-4	--		1.0 U	2.0 U	2.0 U	2.0 U			2.0 U	
Vinyl chloride	75-01-4	--		0.20 U	0.20 U	0.20 U	0.20 U			0.20 U	
Xylene (meta & para)	108-38-3/106-42-3	--			4.0 U	4.0 U	4.0 U			4.0 U	
Xylene (ortho)	95-47-6	--			2.0 U	2.0 U	2.0 U			2.0 U	
Xylene (total)	1330-20-7	1,000		1.0 U	4.0 U	4.0 U	4.0 U			4.0 U	
<b>Other</b>											
PBDE-003	101-55-3	--							1.0 U		

## Notes:

Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- 1 Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from the February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- 2 A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- 3 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd|Snider was preferred over laboratory reported result.

## Abbreviations:

CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

## Qualifiers:

J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-05							
Sample Name			WCD-MW5-32	WCD-MW05-120511	WCD-MW05-112712	WCD-MW05-030513	WCD-MW05-060413	WCD-MW05-100113	MW05-09152020	MW05-WL-03292021
Sample Date			6/21/2010	12/5/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013	9/15/2020	3/29/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>								
Semivolatle Organic Compounds										
1-Methylnaphthalene	90-12-0	--			0.10 U				0.10 U	
2,4,5-Trichlorophenol	95-95-4	1,600							2.0 U	
2,4,6-Trichlorophenol	88-06-2	8.0							2.0 U	
2,4-Dichlorophenol	120-83-2	48							2.0 U	
2,4-Dimethylphenol	105-67-9	320							1.0 U	
2,4-Dinitrophenol	51-28-5	32							2.0 UJ	
2-Chloronaphthalene	91-58-7	--								
2-Chlorophenol	95-57-8	40							1.0 U	
2-Methylnaphthalene	91-57-6	--			0.80				0.10 U	
2-Methylphenol	95-48-7	800							1.0 U	
2-Nitrophenol	88-75-5	--							2.0 U	
3- & 4-Methylphenol	15831-10-4	800							1.0 U	
4,6-Dinitro-o-cresol	534-52-1	1.3							5.0 UJ	
4-Chloro-3-methylphenol	59-50-7	1,600							5.0 U	
4-Nitrophenol	100-02-7	1,600							5.0 UJ	
Acenaphthene	83-32-9	480			0.90				0.20 U	
Acenaphthylene	208-96-8	--			0.10 U				0.20 U	
Acrylonitrile	107-13-1	--		10 U		10 U	10 U	10 U		
Anthracene	120-12-7	2,400			0.10 U				0.10 U	
Benzo(a)anthracene	56-55-3	--	2.7		0.10 U				0.20 U	
Benzo(a)pyrene	50-32-8	--	1.6		0.10 U				0.10 U	
Benzo(b)fluoranthene	205-99-2	--	2.4		0.10 U				0.20 U	
Benzo(g,h,i)perylene	191-24-2	--			0.10 U				0.20 U	
Benzo(k)fluoranthene	207-08-9	--	0.59		0.10 U				0.20 U	
Benzoic acid	65-85-0	--								
Benzyl alcohol	100-51-6	--								
Bis(2-chloroethoxy)methane	111-91-1	--								
Bis(2-ethylhexyl)phthalate	117-81-7	--								
Butyl benzyl phthalate	85-68-7	--								
Carbazole	86-74-8	--								
Chrysene	218-01-9	--	3.5		0.10 U				0.20 U	
Dibenzo(a,h)anthracene	53-70-3	--	0.17		0.10 U				0.20 U	
Indeno(1,2,3-c,d)pyrene	193-39-5	--	0.62		0.10 U				0.10 U	
cPAHs (MITCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	2.3		0.10 U				0.10 U	
cPAHs (MITCA TEQ-ZeroND)	BaPEq (U=0)	0.10	2.3		0.10 U				0.10 U	
Dibenzofuran	132-64-9	--								
Diethylphthalate	84-66-2	--								
Dimethyl phthalate	131-11-3	--								
Di-n-butyl phthalate	84-74-2	--								
Di-n-octyl phthalate	117-84-0	--								
Fluoranthene	206-44-0	640			0.10 U				0.10 U	
Fluorene	86-73-7	320			0.10 U				0.10 U	
Hexachlorobutadiene	87-68-3	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Hexachlorocyclopentadiene	77-47-4	--								
Isophorone	78-59-1	--								
Naphthalene	91-20-3	160 <sup>(3)</sup>	0.39 <sup>(3)</sup>	31 <sup>(3)</sup>	11 <sup>(4)</sup>	70 <sup>(3)</sup>	5.0 <sup>(3)</sup>	2.0 U <sup>(3)</sup>	2.0 U <sup>(3)</sup>	
N-Nitroso-di-n-propylamine	621-64-7	--								
N-Nitrosodiphenylamine	86-30-6	--								
Pentachlorophenol	87-86-5	1.0							0.10 UJ	

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-05							
Sample Name			WCD-MW5-32	WCD-MW05-120511	WCD-MW05-112712	WCD-MW05-030513	WCD-MW05-060413	WCD-MW05-100113	MW05-09152020	MW05-WL-03292021
Sample Date			6/21/2010	12/5/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013	9/15/2020	3/29/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>								
<b>Semivolatile Organic Compounds (cont.)</b>										
Phenanthrene	85-01-8	--			0.10 U				0.10 U	
Phenol	108-95-2	4,800							2.0 UJ	
Pyrene	129-00-0	240			0.10 U				0.20 U	
Total Naphthalenes	--	160			12				2.0 U	
<b>Volatile Organic Compounds</b>										
1,1,1,2-Tetrachloroethane	630-20-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,1,1-Trichloroethane	71-55-6	200	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
1,1,2,2-Tetrachloroethane	79-34-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,1,2-Trichloroethane	79-00-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,1-Dichloroethane	75-34-3	7.7	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
1,1-Dichloroethene	75-35-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,1-Dichloropropene	563-58-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,2,3-Trichlorobenzene	87-61-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,2,3-Trichloropropane	96-18-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,2,4-Trichlorobenzene	120-82-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,2,4-Trimethylbenzene	95-63-6	80	1.1	2.0 U	1.0 U	2.5	2.0 U	2.0 U	1.0 U	
1,2-Dibromo-3-chloropropane	96-12-8	--	10 U	10 U	1.0 U	10 U	10 U	10 U		
1,2-Dibromoethane	106-93-4	--	1.0 U	0.010 U	1.0 U	0.010 U	0.010 U	0.010 U		
1,2-Dichlorobenzene	95-50-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,2-Dichloroethane	107-06-2	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,2-Dichloropropane	78-87-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,3,5-Trimethylbenzene	108-67-8	80	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
1,3-Dichlorobenzene	541-73-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,3-Dichloropropane	142-28-9	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
1,4-Dichlorobenzene	106-46-7	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
2,2-Dichloropropane	594-20-7	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
2,4-Dinitrotoluene	121-14-2	--								
2,6-Dinitrotoluene	606-20-2	--								
2-Chlorotoluene	95-49-8	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
2-Hexanone	591-78-6	--	10 U	10 U	1.0 U	10 U	10 U	10 U		
2-Nitroaniline	88-74-4	--								
3-Nitroaniline	99-09-2	--								
4-Chloroaniline	106-47-8	--								
4-Chlorophenyl phenyl ether	7005-72-3	--								
4-Chlorotoluene	106-43-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
4-Nitroaniline	100-01-6	--								
Acetone	67-64-1	--	10 U	25 U	10 U	25 U	25 U	25 U		
Benzene	71-43-2	5.0	0.35 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
Bis(2-chloroethyl)ether	111-44-4	--								
Bis(2-chloroisopropyl)ether	39638-32-9	--								
Bromobenzene	108-86-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Bromochloromethane	74-97-5	--		2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Bromodichloromethane	75-27-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Bromoform	75-25-2	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Bromomethane	74-83-9	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Carbon disulfide	75-15-0	--		2.0 U		2.0 U	2.0 U	2.0 U		
Carbon tetrachloride	56-23-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Chlorobenzene	108-90-7	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Chloroethane	75-00-3	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Chloroform	67-66-3	70	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	

**Table 5.1**  
**Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)**

Location Name			MW-05							
Sample Name			WCD-MW5-32	WCD-MW05-120511	WCD-MW05-112712	WCD-MW05-030513	WCD-MW05-060413	WCD-MW05-100113	MW05-09152020	MW05-WL-03292021
Sample Date			6/21/2010	12/5/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013	9/15/2020	3/29/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>								
<b>Volatile Organic Compounds (cont.)</b>										
Chloromethane	74-87-3	--	10 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	
cis-1,2-Dichloroethene	156-59-2	70	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
cis-1,3-Dichloropropene	10061-01-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Cymene	99-87-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Dibromochloromethane	124-48-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Dibromomethane	74-95-3	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Dichlorodifluoromethane	75-71-8	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Ethylbenzene	100-41-4	700	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
Hexachlorobenzene	118-74-1	--								
Hexachloroethane	67-72-1	--								
Isopropylbenzene	98-82-8	800	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
Methyl ethyl ketone	78-93-3	--	10 U	10 U	10 U	10 U	10 U	10 U		
Methyl isobutyl ketone	108-10-1	640	10 U	10 U	1.0 U	10 U	10 U	10 U	1.3 U	
Methylene chloride	75-09-2	--	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U		
Methyl-tert-butyl ether	1634-04-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
n-Butylbenzene	104-51-8	--		2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Nitrobenzene	98-95-3	--								
n-Propylbenzene	103-65-1	800	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
sec-Butylbenzene	135-98-8	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Styrene	100-42-5	100	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
tert-Butylbenzene	98-06-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Tetrachloroethene	127-18-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Toluene	108-88-3	1,000	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	
trans-1,2-Dichloroethene	156-60-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
trans-1,3-Dichloropropene	10061-02-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Trichloroethene	79-01-6	5.0	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	0.50 U	
Trichlorofluoromethane	75-69-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U		
Vinyl chloride	75-01-4	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U		
Xylene (meta & para)	108-38-3/106-42-3	--	2.0 U	4.0 U		4.0 U	4.0 U	4.0 U	1.0 U	
Xylene (ortho)	95-47-6	--	1.0 U	2.0 U		2.0 U	2.0 U	2.0 U	1.0 U	
Xylene (total)	1330-20-7	1,000	2.0 U	4.0 U	1.0 U	4.0 U	4.0 U	4.0 U	1.0 U <sup>(5)</sup>	
<b>Other</b>										
PBDE-003	101-55-3	--								

**Notes:**

Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- 1 Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- 2 A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- 4 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd/Snyder was preferred over laboratory reported result.

**Abbreviations:**

CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

**Qualifiers:**

- J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
U Analyte is not detected at the associated reporting limit, which is an estimate.



Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-06									
Sample Name			WCD-MW6-31	WCD-MW06-120611	WCD-MW06-112712	WCD-MW06-030513	WCD-MW06-060413	WCD-MW06-100113	MW06-09152020 <sup>(2)</sup>	MW-06-12172020	MW06-032921	MW06-06222021
Sample Date			6/21/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013	9/15/2020	12/17/2020	3/29/2021	6/22/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds</b>												
1-Methylnaphthalene	90-12-0	--			800		470	480	570	400	370	550
2,4,5-Trichlorophenol	95-95-4	1,600	10 U						2.0 U	2.0 UJ		
2,4,6-Trichlorophenol	88-06-2	8.0	10 U						2.0 U	2.0 UJ		
2,4-Dichlorophenol	120-83-2	48	10 U						2.0 U	2.0 UJ		
2,4-Dimethylphenol	105-67-9	320	10 U						0.98 U	0.99 UJ		
2,4-Dinitrophenol	51-28-5	32	30 U						2.0 UJ	2.0 UJ		
2-Chloronaphthalene	91-58-7	--	1.0 U									
2-Chlorophenol	95-57-8	40	10 U						0.98 U	0.99 UJ		
2-Methylnaphthalene	91-57-6	--	780		1,000		710	980	740	550	460	720
2-Methylphenol	95-48-7	800	10 U						1.5			
2-Nitrophenol	88-75-5	--	10 U						2.0 U	2.0 UJ		
3- & 4-Methylphenol	15831-10-4	800	10 U						2.2	0.99 UJ		
4,6-Dinitro-o-cresol	534-52-1	1.3	30 U		1.3				49 U	5.0 UJ		
4-Chloro-3-methylphenol	59-50-7	1,600	10 U						4.9 U	5.0 UJ		
4-Nitrophenol	100-02-7	1,600	10 U						4.9 UJ	5.0 UJ		
Acenaphthene	83-32-9	480	220		6.9		170	190	190	110	140	160
Acenaphthylene	208-96-8	--	20		240		15	22	19	9.9 J		11
Acrylonitrile	107-13-1	--		10 U		10 U	10 U	10 U				
Anthracene	120-12-7	2,400	19		7.6		6.0	20 U	8.4	4.3	6.0	4.6
Benzo(a)anthracene	56-55-3	--	6.9		0.10 U	0.75	0.74	0.68	1.8	0.57	1.6	1.1
Benzo(a)pyrene	50-32-8	--	5.9		0.10 U	0.48	0.52	0.49	1.3	0.16	1.4	0.67
Benzo(b)fluoranthene	205-99-2	--	7.8		0.10 U	0.45	0.55	0.45	1.1	0.26	1.2	0.60
Benzo(g,h,i)perylene	191-24-2	--	2.2		0.10 U		0.23	0.61	0.47	0.50 U		0.37
Benzo(k)fluoranthene	207-08-9	--	5.0 U		0.10 U	0.35	0.54	0.31	0.85	0.22	1.1	0.56
Benzoic acid	65-85-0	--	100 U									
Benzyl alcohol	100-51-6	--	1.0 U									
Bis(2-chloroethoxy)methane	111-91-1	--	1.0 U									
Bis(2-ethylhexyl)phthalate	117-81-7	--	10 U									
Butyl benzyl phthalate	85-68-7	--	1.0 U									
Carbazole	86-74-8	--	110									
Chrysene	218-01-9	--	6.8		0.90	0.77	0.78	0.69	1.3	0.40	1.2	0.80
Dibenzo(a,h)anthracene	53-70-3	--	5.0 U		0.10 U	0.29	0.080 U	0.44	0.22	0.14	0.40 U	0.40 U
Indeno(1,2,3-c,d)pyrene	193-39-5	--	5.0 U		0.10 U	0.35	0.16	0.54	0.44	0.16	0.58	0.33
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	8.2		0.084	0.71	0.73	0.74	1.8	0.30	1.9	0.96
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	7.4		0.0090	0.71	0.73	0.74	1.8	0.30	1.9	0.94
Dibenzofuran	132-64-9	--	69									
Diethylphthalate	84-66-2	--	1.0 U									
Dimethyl phthalate	131-11-3	--	1.0 U									
Di-n-butyl phthalate	84-74-2	--	1.0 U									
Di-n-octyl phthalate	117-84-0	--	1.0 U									
Fluoranthene	206-44-0	640	31		11		6.3	7.0	10	5.8		8.2
Fluorene	86-73-7	320	89		54		35	49	60	50 U		54
Hexachlorobutadiene	87-68-3	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Hexachlorocyclopentadiene	77-47-4	--	3.0 U									
Isophorone	78-59-1	--	1.0 U									
Naphthalene	91-20-3	160 <sup>(3)</sup>	5,900	9,200 <sup>(3)</sup>	9,800 <sup>(4)</sup>	1,100 <sup>(3)</sup>	7,400 <sup>(4)</sup>	9,900 <sup>(4)</sup>	5,700	2,900	3,700	5,200 <sup>(4)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--	1.0 U									
N-Nitrosodiphenylamine	86-30-6	--	1.0 U									
Pentachlorophenol	87-86-5	1.0	10 U						0.098 UJ	0.20 UJ	0.27 U	0.20 U

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-06									
Sample Name			WCD-MW6-31	WCD-MW06-120611	WCD-MW06-112712	WCD-MW06-030513	WCD-MW06-060413	WCD-MW06-100113	MW06-09152020 <sup>(2)</sup>	MW-06-12172020	MW06-032921	MW06-06222021
Sample Date			6/21/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013	9/15/2020	12/17/2020	3/29/2021	6/22/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds (cont.)</b>												
Phenanthrene	85-01-8	--	110		26		22	22	42	50 U		35
Phenol	108-95-2	4,800	10 U						2.0 UJ	2.0 UJ		
Pyrene	129-00-0	240	30		7.1		4.9	4.2	7.5	3.8		5.2
Total Naphthalenes	--	160	6,700		12,000		8,600	11,000	7,000	3,800	4,500	6,500
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	630-20-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,1,1-Trichloroethane	71-55-6	200	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	4.0 U	4.0 U
1,1,2,2-Tetrachloroethane	79-34-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,1,2-Trichloroethane	79-00-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,1-Dichloroethane	75-34-3	7.7	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	5.0 U	5.0 U
1,1-Dichloroethene	75-35-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,1-Dichloropropene	563-58-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,2,3-Trichlorobenzene	87-61-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,2,3-Trichloropropane	96-18-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,2,4-Trichlorobenzene	120-82-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,2,4-Trimethylbenzene	95-63-6	80	91 J	150	170	160	150	170	160	120	97	110
1,2-Dibromo-3-chloropropane	96-12-8	--	10 U	10 U	1.0 U	10 U	10 U	10 U				
1,2-Dibromoethane	106-93-4	--	1.0 U	0.010 U	1.0 U	0.010 U	0.010 U	0.010 U				
1,2-Dichlorobenzene	95-50-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,2-Dichloroethane	107-06-2	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,2-Dichloropropane	78-87-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,3,5-Trimethylbenzene	108-67-8	80	51	51	63	57	54	65	47	41	31	36
1,3-Dichlorobenzene	541-73-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,3-Dichloropropane	142-28-9	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
1,4-Dichlorobenzene	106-46-7	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
2,2-Dichloropropane	594-20-7	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
2,4-Dinitrotoluene	121-14-2	--	1.0 U									
2,6-Dinitrotoluene	606-20-2	--	1.0 U									
2-Chlorotoluene	95-49-8	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
2-Hexanone	591-78-6	--	10 U	10 U	1.0 U	10 U	10 U	10 U				
2-Nitroaniline	88-74-4	--	1.0 U									
3-Nitroaniline	99-09-2	--	3.0 U									
4-Chloroaniline	106-47-8	--	3.0 U									
4-Chlorophenyl phenyl ether	7005-72-3	--	1.0 U									
4-Chlorotoluene	106-43-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
4-Nitroaniline	100-01-6	--	10 U									
Acetone	67-64-1	--	10 U	25 U	10 U	25 U	25 U	25 U				
Benzene	71-43-2	5.0	0.35 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	4.4 U	4.4 U
Bis(2-chloroethyl)ether	111-44-4	--	1.0 U									
Bis(2-chloroisopropyl)ether	39638-32-9	--	1.0 U									
Bromobenzene	108-86-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Bromochloromethane	74-97-5	--		2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Bromodichloromethane	75-27-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Bromoform	75-25-2	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Bromomethane	74-83-9	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Carbon disulfide	75-15-0	--		2.0 U		2.0 U	2.0 U	2.0 U				
Carbon tetrachloride	56-23-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Chlorobenzene	108-90-7	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Chloroethane	75-00-3	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Chloroform	67-66-3	70	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	5.0 U	5.0 U

**Table 5.1**  
**Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)**

Location Name			MW-06									
Sample Name			WCD-MW6-31	WCD-MW06-120611	WCD-MW06-112712	WCD-MW06-030513	WCD-MW06-060413	WCD-MW06-100113	MW06-09152020 <sup>(2)</sup>	MW-06-12172020	MW06-032921	MW06-06222021
Sample Date			6/21/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013	9/15/2020	12/17/2020	3/29/2021	6/22/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Volatile Organic Compounds (cont.)</b>												
Chloromethane	74-87-3	--	10 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	7.5 U	7.5 U
cis-1,2-Dichloroethene	156-59-2	70	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	5.0 U	5.0 U
cis-1,3-Dichloropropene	10061-01-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Cymene	99-87-6	--	6.2	6.4	5.2	6.3	5.1	6.1				
Dibromochloromethane	124-48-1	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Dibromomethane	74-95-3	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Dichlorodifluoromethane	75-71-8	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Ethylbenzene	100-41-4	700	7.6	2.1	3.0	2.1	2.0 U	3.1	2.4	1.5	4.0 U	4.0 U
Hexachlorobenzene	118-74-1	--	1.0 U									
Hexachloroethane	67-72-1	--	1.0 U									
Isopropylbenzene	98-82-8	800	7.5	6.0	7.1	7.1	5.5	6.5	7.6	5.6	5.0 U	5.7
Methyl ethyl ketone	78-93-3	--	10 U	10 U	10 U	10 U	10 U	10 U			15 U	
Methyl isobutyl ketone	108-10-1	640	10 U	10 U	1.0 U	10 U	10 U	10 U	1.3 U	1.3 U		13 U
Methylene chloride	75-09-2	--	5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U				
Methyl-tert-butyl ether	1634-04-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
n-Butylbenzene	104-51-8	--		2.0 U	8.6	2.0 U	2.0 U	2.0 U				
Nitrobenzene	98-95-3	--	1.0 U									
n-Propylbenzene	103-65-1	800	4.7	3.2	5.1	2.0 U	2.0 U	4.4	6.3	4.6	5.0 U	5.0 U
sec-Butylbenzene	135-98-8	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Styrene	100-42-5	100	9.2	3.5	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	5.0 U	5.0 U
tert-Butylbenzene	98-06-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Tetrachloroethene	127-18-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Toluene	108-88-3	1,000	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	7.5 U	7.5 U
trans-1,2-Dichloroethene	156-60-5	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
trans-1,3-Dichloropropene	10061-02-6	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Trichloroethene	79-01-6	5.0	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U	0.50 U	0.50 U	5.0 U	5.0 U
Trichlorofluoromethane	75-69-4	--	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U				
Vinyl chloride	75-01-4	--	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U				
Xylene (meta & para)	108-38-3/106-42-3	--	56	27		23	16	21	17	11	10 U	14
Xylene (ortho)	95-47-6	--	48	25	--	19	14	18	11	6.9	5.0 U	8.1
Xylene (total)	1330-20-7	1,000	100	52	63	42	30	39	28 <sup>(5)</sup>	18	10 U <sup>(5)</sup>	22 <sup>(5)</sup>
<b>Other</b>												
PBDE-003	101-55-3	--	1.0 U									

**Notes:**

Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd/Snyder was preferred over laboratory reported result.

**Abbreviations:**

CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

**Qualifiers:**

J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
U Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-07					MW-08	MW-09			
Sample Name			WCD-MW7-36	WCD-MW07-120511	WCD-MW07-112712	WCD-MW07-100113	MW07-WL-03292021	WCD-MW8-37	WCD-MW9-65	WCD-MW09-120511	WCD-MW09-112712	WCD-MW09-100113
Sample Date			6/21/2010	12/5/2011	11/27/2012	10/1/2013	3/29/2021	6/22/2010	6/21/2010	12/5/2011	11/27/2012	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds</b>												
1-Methylnaphthalene	90-12-0	--			0.10 U						0.10 U	0.023
2,4,5-Trichlorophenol	95-95-4	1,600										
2,4,6-Trichlorophenol	88-06-2	8.0										
2,4-Dichlorophenol	120-83-2	48										
2,4-Dimethylphenol	105-67-9	320										
2,4-Dinitrophenol	51-28-5	32										
2-Chloronaphthalene	91-58-7	--										
2-Chlorophenol	95-57-8	40										
2-Methylnaphthalene	91-57-6	--			1.6						0.10 U	0.020 U
2-Methylphenol	95-48-7	800										
2-Nitrophenol	88-75-5	--										
3- & 4-Methylphenol	15831-10-4	800										
4,6-Dinitro-o-cresol	534-52-1	1.3										
4-Chloro-3-methylphenol	59-50-7	1,600										
4-Nitrophenol	100-02-7	1,600										
Acenaphthene	83-32-9	480			1.2						0.10 U	0.12
Acenaphthylene	208-96-8	--			2.4						0.10 U	0.020 U
Acrylonitrile	107-13-1	--		10 U		10 U				10 U		10 U
Anthracene	120-12-7	2,400			0.10 U						0.10 U	0.039
Benzo(a)anthracene	56-55-3	--	0.96		0.10 U			0.10 U	0.14		0.10 U	0.021
Benzo(a)pyrene	50-32-8	--	0.43		0.10 U			0.10 U	0.10 U		0.10 U	0.029 U
Benzo(b)fluoranthene	205-99-2	--	0.58		0.10 U			0.10 U	0.10 U		0.10 U	0.020 U
Benzo(g,h,i)perylene	191-24-2	--			0.10 U						0.10 U	0.077
Benzo(k)fluoranthene	207-08-9	--	0.21		0.10 U			0.10 U	0.10 U		0.10 U	0.020 U
Benzoic acid	65-85-0	--										
Benzyl alcohol	100-51-6	--										
Bis(2-chloroethoxy)methane	111-91-1	--										
Bis(2-ethylhexyl)phthalate	117-81-7	--										
Butyl benzyl phthalate	85-68-7	--										
Carbazole	86-74-8	--										
Chrysene	218-01-9	--	0.93		0.10 U			0.10 U	0.11		0.10 U	0.020 U
Dibenzo(a,h)anthracene	53-70-3	--	0.10 U		0.10 U			0.10 U	0.10 U		0.10 U	0.070
Indeno(1,2,3-c,d)pyrene	193-39-5	--	0.18		0.10 U			0.10 U	0.10 U		0.10 U	0.072
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	0.64		0.10 U			0.10 U	0.085		0.10 U	0.033
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	0.63		0.10 U			0.10 U	0.015		0.10 U	0.016
Dibenzofuran	132-64-9	--										
Diethylphthalate	84-66-2	--										
Dimethyl phthalate	131-11-3	--										
Di-n-butyl phthalate	84-74-2	--										
Di-n-octyl phthalate	117-84-0	--										
Fluoranthene	206-44-0	640			2.3						0.10 U	0.068
Fluorene	86-73-7	320			4.1						0.10 U	0.089
Hexachlorobutadiene	87-68-3	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Hexachlorocyclopentadiene	77-47-4	--										
Isophorone	78-59-1	--										
Naphthalene	91-20-3	160 <sup>(3)</sup>	1,200 <sup>(3)</sup>	890 <sup>(3)</sup>	3.6 <sup>(4)</sup>	120 <sup>(3)</sup>		0.10 U <sup>(3)</sup>	0.32 <sup>(3)</sup>	2.0 U <sup>(3)</sup>	0.10 U <sup>(4)</sup>	0.020 U <sup>(4)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--										
N-Nitrosodiphenylamine	86-30-6	--										
Pentachlorophenol	87-86-5	1.0										

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-07					MW-08	MW-09			
Sample Name			WCD-MW7-36	WCD-MW07-120511	WCD-MW07-112712	WCD-MW07-100113	MW07-WL-03292021	WCD-MW8-37	WCD-MW9-65	WCD-MW09-120511	WCD-MW09-112712	WCD-MW09-100113
Sample Date			6/21/2010	12/5/2011	11/27/2012	10/1/2013	3/29/2021	6/22/2010	6/21/2010	12/5/2011	11/27/2012	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds (cont.)</b>												
Phenanthrene	85-01-8	--			1.1						0.10 U	0.18
Phenol	108-95-2	4,800										
Pyrene	129-00-0	240			0.20						0.10 U	0.060
Total Naphthalenes	--	160			5.2						0.10 U	0.023
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	630-20-6	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,1,1-Trichloroethane	71-55-6	200		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,1,2,2-Tetrachloroethane	79-34-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,1,2-Trichloroethane	79-00-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,1-Dichloroethane	75-34-3	7.7		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,1-Dichloroethene	75-35-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,1-Dichloropropene	563-58-6	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,2,3-Trichlorobenzene	87-61-6	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,2,3-Trichloropropane	96-18-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,2,4-Trichlorobenzene	120-82-1	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,2,4-Trimethylbenzene	95-63-6	80		18	1.0 U	2.4				2.0 U	1.0 U	2.0 U
1,2-Dibromo-3-chloropropane	96-12-8	--		10 U	1.0 U	10 U				10 U	1.0 U	10 U
1,2-Dibromoethane	106-93-4	--		0.010 U	1.0 U	0.010 U				0.010 U	1.0 U	0.010 U
1,2-Dichlorobenzene	95-50-1	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,2-Dichloroethane	107-06-2	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,2-Dichloropropane	78-87-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,3,5-Trimethylbenzene	108-67-8	80		6.6	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,3-Dichlorobenzene	541-73-1	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,3-Dichloropropane	142-28-9	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
1,4-Dichlorobenzene	106-46-7	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
2,2-Dichloropropane	594-20-7	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
2,4-Dinitrotoluene	121-14-2	--										
2,6-Dinitrotoluene	606-20-2	--										
2-Chlorotoluene	95-49-8	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
2-Hexanone	591-78-6	--		10 U	1.0 U	10 U				10 U	1.0 U	10 U
2-Nitroaniline	88-74-4	--										
3-Nitroaniline	99-09-2	--										
4-Chloroaniline	106-47-8	--										
4-Chlorophenyl phenyl ether	7005-72-3	--										
4-Chlorotoluene	106-43-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
4-Nitroaniline	100-01-6	--										
Acetone	67-64-1	--		25 U	10 U	25 U				25 U	10 U	25 U
Benzene	71-43-2	5.0		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Bis(2-chloroethyl)ether	111-44-4	--										
Bis(2-chloroisopropyl)ether	39638-32-9	--										
Bromobenzene	108-86-1	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Bromochloromethane	74-97-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Bromodichloromethane	75-27-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Bromoform	75-25-2	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Bromomethane	74-83-9	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Carbon disulfide	75-15-0	--		2.0 U	--	2.0 U				2.0 U	--	2.0 U
Carbon tetrachloride	56-23-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Chlorobenzene	108-90-7	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Chloroethane	75-00-3	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Chloroform	67-66-3	70		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U



Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-07					MW-08	MW-09			
Sample Name			WCD-MW7-36	WCD-MW07-120511	WCD-MW07-112712	WCD-MW07-100113	MW07-WL-03292021	WCD-MW8-37	WCD-MW9-65	WCD-MW09-120511	WCD-MW09-112712	WCD-MW09-100113
Sample Date			6/21/2010	12/5/2011	11/27/2012	10/1/2013	3/29/2021	6/22/2010	6/21/2010	12/5/2011	11/27/2012	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Volatile Organic Compounds (cont.)</b>												
Chloromethane	74-87-3	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
cis-1,2-Dichloroethene	156-59-2	70		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
cis-1,3-Dichloropropene	10061-01-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Cymene	99-87-6	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Dibromochloromethane	124-48-1	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Dibromomethane	74-95-3	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Dichlorodifluoromethane	75-71-8	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Ethylbenzene	100-41-4	700		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Hexachlorobenzene	118-74-1	--										
Hexachloroethane	67-72-1	--										
Isopropylbenzene	98-82-8	800		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Methyl ethyl ketone	78-93-3	--		10 U	10 U	10 U				10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	640		10 U	1.0 U	10 U				10 U	1.0 U	10 U
Methylene chloride	75-09-2	--		5.0 U	1.0 U	5.0 U				5.0 U	1.0 U	5.0 U
Methyl-tert-butyl ether	1634-04-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
n-Butylbenzene	104-51-8	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Nitrobenzene	98-95-3	--										
n-Propylbenzene	103-65-1	800		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
sec-Butylbenzene	135-98-8	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Styrene	100-42-5	100	1.0 U	2.0 U	1.0 U	2.0 U		1.0 U	1.0 U	2.0 U	1.0 U	2.0 U
tert-Butylbenzene	98-06-6	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Tetrachloroethene	127-18-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Toluene	108-88-3	1,000		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
trans-1,2-Dichloroethene	156-60-5	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
trans-1,3-Dichloropropene	10061-02-6	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Trichloroethene	79-01-6	5.0		2.0 U	1.0 U	2.0 U				2.0 U	6.7	5.9
Trichlorofluoromethane	75-69-4	--		2.0 U	1.0 U	2.0 U				2.0 U	1.0 U	2.0 U
Vinyl chloride	75-01-4	--		0.20 U	0.20 U	0.20 U				0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3	--		4.0 U		4.0 U				4.0 U		4.0 U
Xylene (ortho)	95-47-6	--		2.0 U		2.0 U				2.0 U		2.0 U
Xylene (total)	1330-20-7	1,000		4.0 U	1.0 U	4.0 U				4.0 U	1.0 U	4.0 U
<b>Other</b>												
PBDE-003	101-55-3	--										

Notes:

Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- 1 Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- 2 A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- 4 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd|Snider was preferred over laboratory reported result.

Abbreviations:

CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

Qualifiers:

- J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-09 (cont.)				MW-10					
Sample Name			MW09-09152020	MW-09-12172020	MW09-032921	MW09-06222021	WCD-MW10-43	WCD-MW10-120611	WCD-MW10-112712	WCD-MW10-030513	WCD-MW10-060413	WCD-MW10-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatle Organic Compounds</b>												
1-Methylnaphthalene	90-12-0	--	0.099 U						510			
2,4,5-Trichlorophenol	95-95-4	1,600	2.0 U									
2,4,6-Trichlorophenol	88-06-2	8.0	2.0 U									
2,4-Dichlorophenol	120-83-2	48	2.0 U									
2,4-Dimethylphenol	105-67-9	320	0.99 U									
2,4-Dinitrophenol	51-28-5	32	2.0 UJ									
2-Chloronaphthalene	91-58-7	--										
2-Chlorophenol	95-57-8	40	0.99 U									
2-Methylnaphthalene	91-57-6	--	0.099 U						430			
2-Methylphenol	95-48-7	800	0.99 U									
2-Nitrophenol	88-75-5	--	2.0 U									
3- & 4-Methylphenol	15831-10-4	800	0.99 U									
4,6-Dinitro-o-cresol	534-52-1	1.3	5.0 UJ									
4-Chloro-3-methylphenol	59-50-7	1,600	5.0 U									
4-Nitrophenol	100-02-7	1,600	5.0 UJ									
Acenaphthene	83-32-9	480	0.20 U						6.9			
Acenaphthylene	208-96-8	--	0.20 U						240			
Acrylonitrile	107-13-1	--						10 U		10 U	10 U	10 U
Anthracene	120-12-7	2,400	0.099 U						0.10 U			
Benzo(a)anthracene	56-55-3	--	0.20 U				0.10 U		0.10 U			
Benzo(a)pyrene	50-32-8	--	0.099 U				0.10 U		0.10 U			
Benzo(b)fluoranthene	205-99-2	--	0.20 U				0.10 U		0.10 U			
Benzo(g,h,i)perylene	191-24-2	--	0.20 U						0.10 U			
Benzo(k)fluoranthene	207-08-9	--	0.20 U				0.10 U		0.10 U			
Benzoic acid	65-85-0	--										
Benzyl alcohol	100-51-6	--										
Bis(2-chloroethoxy)methane	111-91-1	--										
Bis(2-ethylhexyl)phthalate	117-81-7	--										
Butyl benzyl phthalate	85-68-7	--										
Carbazole	86-74-8	--										
Chrysene	218-01-9	--	0.20 U				0.10 U		0.10 U			
Dibenzo(a,h)anthracene	53-70-3	--	0.20 U				0.10 U		0.10 U			
Indeno(1,2,3-c,d)pyrene	193-39-5	--	0.099 U				0.10 U		0.10 U			
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	0.099 U				0.10 U		0.10 U			
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	0.099 U				0.10 U		0.10 U			
Dibenzofuran	132-64-9	--										
Diethylphthalate	84-66-2	--										
Dimethyl phthalate	131-11-3	--										
Di-n-butyl phthalate	84-74-2	--										
Di-n-octyl phthalate	117-84-0	--										
Fluoranthene	206-44-0	640	0.099 U						0.10 U			
Fluorene	86-73-7	320	0.099 U						0.10 U			
Hexachlorobutadiene	87-68-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Hexachlorocyclopentadiene	77-47-4	--										
Isophorone	78-59-1	--										
Naphthalene	160 <sup>(3)</sup>	160 <sup>(3)</sup>	2.0 U <sup>(3)</sup>	1.0 U <sup>(3)</sup>	1.3 U <sup>(3)</sup>	1.3 U <sup>(3)</sup>	10,000 <sup>(3)</sup>	14,000 <sup>(3)</sup>	11,000 <sup>(4)</sup>	2,300 <sup>(3)</sup>	12,000 <sup>(3)</sup>	12,000 <sup>(3)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--										
N-Nitrosodiphenylamine	86-30-6	--										
Pentachlorophenol	87-86-5	1.0	0.099 UJ									

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-09 (cont.)				MW-10					
Sample Name			MW09-09152020	MW-09-12172020	MW09-032921	MW09-06222021	WCD-MW10-43	WCD-MW10-120611	WCD-MW10-112712	WCD-MW10-030513	WCD-MW10-060413	WCD-MW10-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds (cont.)</b>												
Phenanthrene	85-01-8	--	0.099 U						0.10 U			
Phenol	108-95-2	4,800	2.0 UJ									
Pyrene	129-00-0	240	0.20 U						0.10 U			
Total Naphthalenes	--	160	2.0 U						12,000			
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	630-20-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	71-55-6	200	1.0 U	1.0 U	0.40 U	0.40 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,2,2-Tetrachloroethane	79-34-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,2-Trichloroethane	79-00-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloroethane	75-34-3	7.7	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloroethene	75-35-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloropropene	563-58-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,3-Trichlorobenzene	87-61-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,3-Trichloropropane	96-18-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,4-Trichlorobenzene	120-82-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,4-Trimethylbenzene	95-63-6	80	1.0 U	1.0 U	0.50 U	0.50 U	230	310	440	230	170	150
1,2-Dibromo-3-chloropropane	96-12-8	--					10 U	10 U	1.0 U	10 U	10 U	10 U
1,2-Dibromoethane	106-93-4	--					1.0 U	0.010 U	1.0 U	0.010 U	0.010 U	0.010 U
1,2-Dichlorobenzene	95-50-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloroethane	107-06-2	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane	78-87-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3,5-Trimethylbenzene	108-67-8	80	1.0 U	1.0 U	0.25 U	0.25 U	90	110	87	77	63	57
1,3-Dichlorobenzene	541-73-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3-Dichloropropane	142-28-9	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,4-Dichlorobenzene	106-46-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2,2-Dichloropropane	594-20-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2,4-Dinitrotoluene	121-14-2	--										
2,6-Dinitrotoluene	606-20-2	--										
2-Chlorotoluene	95-49-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2-Hexanone	591-78-6	--					10 U	10 U	1.0 U	10 U	10 U	10 U
2-Nitroaniline	88-74-4	--										
3-Nitroaniline	99-09-2	--										
4-Chloroaniline	106-47-8	--										
4-Chlorophenyl phenyl ether	7005-72-3	--										
4-Chlorotoluene	106-43-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
4-Nitroaniline	100-01-6	--										
Acetone	67-64-1	--					10 U	25 U	10 U	25 U	25 U	25 U
Benzene	71-43-2	5.0	1.0 U	1.0 U	0.44 U	0.44 U	1.3	2.0 U	1.6	2.0 U	2.0 U	2.0 U
Bis(2-chloroethyl)ether	111-44-4	--										
Bis(2-chloroisopropyl)ether	39638-32-9	--										
Bromobenzene	108-86-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromochloromethane	74-97-5	--						2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromodichloromethane	75-27-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromoform	75-25-2	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromomethane	74-83-9	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Carbon disulfide	75-15-0	--						2.0 U		2.0 U	2.0 U	2.0 U
Carbon tetrachloride	56-23-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chlorobenzene	108-90-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chloroethane	75-00-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chloroform	67-66-3	70	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-09 (cont.)				MW-10					
Sample Name			MW09-09152020	MW-09-12172020	MW09-032921	MW09-06222021	WCD-MW10-43	WCD-MW10-120611	WCD-MW10-112712	WCD-MW10-030513	WCD-MW10-060413	WCD-MW10-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Volatile Organic Compounds (cont.)</b>												
Chloromethane	74-87-3	--	2.0 U	2.0 U	0.75 U	0.75 U	10 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	156-59-2	70	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,3-Dichloropropene	10061-01-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Cymene	99-87-6	--					11	13	9.8	29	22	24
Dibromochloromethane	124-48-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dibromomethane	74-95-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dichlorodifluoromethane	75-71-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Ethylbenzene	100-41-4	700	1.0 U	1.0 U	0.40 U	0.76	660	720	890	520	330	360
Hexachlorobenzene	118-74-1	--										
Hexachloroethane	67-72-1	--										
Isopropylbenzene	98-82-8	800	1.0 U	1.0 U	0.50 U	0.50 U	41	42	40	36	27	28
Methyl ethyl ketone	78-93-3	--			1.5 U		10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	640	1.3 U	1.3 U		1.3 U	10 U	10 U	1.0 U	10 U	10 U	10 U
Methylene chloride	75-09-2	--					5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U
Methyl-tert-butyl ether	1634-04-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
n-Butylbenzene	104-51-8	--						2.0 U	6.4	2.0 U	2.0 U	2.0 U
Nitrobenzene	98-95-3	--										
n-Propylbenzene	103-65-1	800	1.0 U	1.0 U	0.50 U	0.50 U	14	15	16	2.0 U	12	12
sec-Butylbenzene	135-98-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Styrene	100-42-5	100	1.0 U	1.0 U	0.50 U	0.50 U	15	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
tert-Butylbenzene	98-06-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Tetrachloroethene	127-18-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Toluene	108-88-3	1,000	1.0 U	1.0 U	0.75 U	0.75 U	61	71	52	49	40	40
trans-1,2-Dichloroethene	156-60-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
trans-1,3-Dichloropropene	10061-02-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Trichloroethene	79-01-6	5.0	2.7	2.5	1.7	2.1	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Trichlorofluoromethane	75-69-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Vinyl chloride	75-01-4	--					0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3	--	1.0 U	1.0 U	1.0 U	1.0 U	790	950		660	490	500
Xylene (ortho)	95-47-6	--	1.0 U	1.0 U	0.50 U	0.50 U	460	510		370	310	290
Xylene (total)	1330-20-7	1,000	1.0 U <sup>(5)</sup>	1.0 U	1.0 U <sup>(5)</sup>	1.0 U <sup>(5)</sup>	1,200	1,500	1,900	1,000	800	790
<b>Other</b>												
PBDE-003	101-55-3	--										

Notes:

- Blank cells are intentional.
- All criteria and results are rounded to two significant figures. Field parameters are not rounded.
- Not available or not established.
- BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- 1 Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- 2 A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- 4 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd|Snider was preferred over laboratory reported result.

Abbreviations:

- CAS = Chemical Abstracts Service
- CPAH = Carcinogenic polycyclic aromatic hydrocarbon
- µg/L = Micrograms per liter
- MTCA = Model Toxics Control Act
- PBDE = Polybrominated diphenyl ethers
- TEQ = Toxic equivalent
- USEPA = U.S. Environmental Protection Agency

Qualifiers:

- J Analyte was detected and the concentration is estimated.
- U Analyte is not detected at the associated reporting limit.
- UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-10 (cont.)				MW-11					
Sample Name			MW10-09152020	MW-10-12172020	MW10-032921	MW10-06222021	WCD-MW11-42	WCD-MW11-120511	WCD-MW11-112712	WCD-MW11-030513	WCD-MW11-060413	WCD-MW11-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/5/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
Semivolatile Organic Compounds												
1-Methylnaphthalene	90-12-0	--							0.10 U			
2,4,5-Trichlorophenol	95-95-4	1,600										
2,4,6-Trichlorophenol	88-06-2	8.0										
2,4-Dichlorophenol	120-83-2	48										
2,4-Dimethylphenol	105-67-9	320										
2,4-Dinitrophenol	51-28-5	32										
2-Chloronaphthalene	91-58-7	--										
2-Chlorophenol	95-57-8	40										
2-Methylnaphthalene	91-57-6	--							0.10 U			
2-Methylphenol	95-48-7	800										
2-Nitrophenol	88-75-5	--										
3- & 4-Methylphenol	15831-10-4	800										
4,6-Dinitro-o-cresol	534-52-1	1.3										
4-Chloro-3-methylphenol	59-50-7	1,600										
4-Nitrophenol	100-02-7	1,600										
Acenaphthene	83-32-9	480										
Acenaphthylene	208-96-8	--							0.10 U			
Acrylonitrile	107-13-1	--						10 U		10 U	10 U	10 U
Anthracene	120-12-7	2,400							0.10 U			
Benzo(a)anthracene	56-55-3	--					0.10 U		0.10 U			
Benzo(a)pyrene	50-32-8	--					0.10 U		0.10 U			
Benzo(b)fluoranthene	205-99-2	--					0.10 U		0.10 U			
Benzo(g,h,i)perylene	191-24-2	--							0.10 U			
Benzo(k)fluoranthene	207-08-9	--					0.10 U		0.10 U			
Benzoic acid	65-85-0	--										
Benzyl alcohol	100-51-6	--										
Bis(2-chloroethoxy)methane	111-91-1	--										
Bis(2-ethylhexyl)phthalate	117-81-7	--										
Butyl benzyl phthalate	85-68-7	--										
Carbazole	86-74-8	--										
Chrysene	218-01-9	--					0.10 U		0.10 U			
Dibenzo(a,h)anthracene	53-70-3	--					0.10 U		0.10 U			
Indeno(1,2,3-c,d)pyrene	193-39-5	--					0.10 U		0.10 U			
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10					0.10 U		0.10 U			
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10					0.10 U		0.10 U			
Dibenzofuran	132-64-9	--										
Diethylphthalate	84-66-2	--										
Dimethyl phthalate	131-11-3	--										
Di-n-butyl phthalate	84-74-2	--										
Di-n-octyl phthalate	117-84-0	--										
Fluoranthene	206-44-0	640							0.10 U			
Fluorene	86-73-7	320							0.10 U			
Hexachlorobutadiene	87-68-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Hexachlorocyclopentadiene	77-47-4	--										
Isophorone	78-59-1	--										
Naphthalene	160 <sup>(3)</sup>	160 <sup>(3)</sup>	7,700 <sup>(3)</sup>	17,000 <sup>(3)</sup>	11,000 <sup>(3)</sup>	16,000 <sup>(3)</sup>	3.1 <sup>(3)</sup>	2.1 <sup>(3)</sup>	0.10 U <sup>(4)</sup>	380 <sup>(3)</sup>	2.0 U <sup>(3)</sup>	7.6 <sup>(3)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--										
N-Nitrosodiphenylamine	86-30-6	--										
Pentachlorophenol	87-86-5	1.0										



Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-10 (cont.)				MW-11					
Sample Name			MW10-09152020	MW-10-12172020	MW10-032921	MW10-06222021	WCD-MW11-42	WCD-MW11-120511	WCD-MW11-112712	WCD-MW11-030513	WCD-MW11-060413	WCD-MW11-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/5/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
Semivolatile Organic Compounds (cont.)												
Phenanthrene	85-01-8	--							0.10 U			
Phenol	108-95-2	4,800										
Pyrene	129-00-0	240							0.10 U			
Total Naphthalenes	--	160							0.10 U			
Volatile Organic Compounds												
1,1,1,2-Tetrachloroethane	630-20-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	71-55-6	200	1.0 U	10 U	8.0 U	8.0 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,2,2-Tetrachloroethane	79-34-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,2-Trichloroethane	79-00-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloroethane	75-34-3	7.7	1.0 U	10 U	10 U	10 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloroethene	75-35-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloropropene	563-58-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,3-Trichlorobenzene	87-61-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,3-Trichloropropane	96-18-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,4-Trichlorobenzene	120-82-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,4-Trimethylbenzene	95-63-6	80	260	330	250	200	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dibromo-3-chloropropane	96-12-8	--					10 U	10 U	1.0 U	10 U	10 U	10 U
1,2-Dibromoethane	106-93-4	--					1.0 U	0.010 U	1.0 U	0.010 U	0.010 U	0.010 U
1,2-Dichlorobenzene	95-50-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloroethane	107-06-2	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane	78-87-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3,5-Trimethylbenzene	108-67-8	80	75	110	87	62	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3-Dichlorobenzene	541-73-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3-Dichloropropane	142-28-9	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,4-Dichlorobenzene	106-46-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2,2-Dichloropropane	594-20-7	--					1.0 U	2.0 U				
2,4-Dinitrotoluene	121-14-2	--							1.0 U	2.0 U	2.0 U	2.0 U
2,6-Dinitrotoluene	606-20-2	--										
2-Chlorotoluene	95-49-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2-Hexanone	591-78-6	--					10 U	10 U	1.0 U	10 U	10 U	10 U
2-Nitroaniline	88-74-4	--										
3-Nitroaniline	99-09-2	--										
4-Chloroaniline	106-47-8	--										
4-Chlorophenyl phenyl ether	7005-72-3	--										
4-Chlorotoluene	106-43-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
4-Nitroaniline	100-01-6	--										
Acetone	67-64-1	--					10 U	25 U	10 U	25 U	25 U	25 U
Benzene	71-43-2	5.0	1.0 U	10 U	8.8 U	8.8 U	0.35 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bis(2-chloroethyl)ether	111-44-4	--										
Bis(2-chloroisopropyl)ether	39638-32-9	--										
Bromobenzene	108-86-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromochloromethane	74-97-5	--						2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromodichloromethane	75-27-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromoform	75-25-2	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromomethane	74-83-9	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Carbon disulfide	75-15-0	--						2.0 U		2.0 U	2.0 U	2.0 U
Carbon tetrachloride	56-23-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chlorobenzene	108-90-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chloroethane	75-00-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chloroform	67-66-3	70	1.0 U	10 U	10 U	10 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-10 (cont.)				MW-11					
Sample Name			MW10-09152020	MW-10-12172020	MW10-032921	MW10-06222021	WCD-MW11-42	WCD-MW11-120511	WCD-MW11-112712	WCD-MW11-030513	WCD-MW11-060413	WCD-MW11-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/5/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Volatile Organic Compounds (cont.)</b>												
Chloromethane	74-87-3	--	2.0 U	20 U	15 U	15 U	10 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	156-59-2	70	1.0 U	10 U	10 U	10 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,3-Dichloropropene	10061-01-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Cymene	99-87-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dibromochloromethane	124-48-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dibromomethane	74-95-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dichlorodifluoromethane	75-71-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Ethylbenzene	100-41-4	700	570	690	540	470	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Hexachlorobenzene	118-74-1	--										
Hexachloroethane	67-72-1	--										
Isopropylbenzene	98-82-8	800	32	35		22	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Methyl ethyl ketone	78-93-3	--			30 U		10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	640	1.3 U	13 U		25 U	10 U	10 U	1.0 U	10 U	10 U	10 U
Methylene chloride	75-09-2	--					5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U
Methyl-tert-butyl ether	1634-04-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
n-Butylbenzene	104-51-8	--						2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Nitrobenzene	98-95-3	--						2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
n-Propylbenzene	103-65-1	800	12	13	10 U	10 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
sec-Butylbenzene	135-98-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Styrene	100-42-5	100	1.0 U	10 U	10 U	10 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
tert-Butylbenzene	98-06-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Tetrachloroethene	127-18-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Toluene	108-88-3	1,000	38	38	31	34	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
trans-1,2-Dichloroethene	156-60-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
trans-1,3-Dichloropropene	10061-02-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Trichloroethene	79-01-6	5.0	0.50 U	5.0 U	10 U	10 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Trichlorofluoromethane	75-69-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Vinyl chloride	75-01-4	--					0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3	--	730	850	760	590	2.0 U	4.0 U		4.0 U	4.0 U	4.0 U
Xylene (ortho)	95-47-6	--	420	450	410	360	1.0 U	2.0 U		2.0 U	2.0 U	2.0 U
Xylene (total)	1330-20-7	1,000	1,200 <sup>(5)</sup>	1,300	1,200 <sup>(5)</sup>	940 <sup>(5)</sup>	2.0 U	4.0 U	1.0 U	4.0 U	4.0 U	4.0 U
<b>Other</b>												
PBDE-003	101-55-3	--										

Notes:

- Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.  
The screening level is a proposed Site cleanup level.

- 1 Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.  
2 A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.  
4 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd/Snyder was preferred over laboratory reported result.

Abbreviations:

- CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

Qualifiers:

- J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-11 (cont.)				MW-12					
Sample Name			MW11-09152020	MW-11-12172020	MW11-032921	MW11-06222021	WCD-MW12-42	WCD-MW12-120611	WCD-MW12-112712	WCD-MW12-030513	WCD-MW12-060413	WCD-MW12-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
Semivolatile Organic Compounds												
1-Methylnaphthalene	90-12-0	--							0.10 U			
2,4,5-Trichlorophenol	95-95-4	1,600										
2,4,6-Trichlorophenol	88-06-2	8.0										
2,4-Dichlorophenol	120-83-2	48										
2,4-Dimethylphenol	105-67-9	320										
2,4-Dinitrophenol	51-28-5	32										
2-Chloronaphthalene	91-58-7	--										
2-Chlorophenol	95-57-8	40										
2-Methylnaphthalene	91-57-6	--							0.10 U			
2-Methylphenol	95-48-7	800										
2-Nitrophenol	88-75-5	--										
3- & 4-Methylphenol	15831-10-4	800										
4,6-Dinitro-o-cresol	534-52-1	1.3										
4-Chloro-3-methylphenol	59-50-7	1,600										
4-Nitrophenol	100-02-7	1,600										
Acenaphthene	83-32-9	480							2.7			
Acenaphthylene	208-96-8	--							7.8			
Acrylonitrile	107-13-1	--						10 U		10 U	10 U	10 U
Anthracene	120-12-7	2,400							0.10 U			
Benzo(a)anthracene	56-55-3	--					0.27		0.10 U			
Benzo(a)pyrene	50-32-8	--					0.10 U		0.10 U			
Benzo(b)fluoranthene	205-99-2	--					0.10 U		0.10 U			
Benzo(g,h,i)perylene	191-24-2	--							0.10 U			
Benzo(k)fluoranthene	207-08-9	--					0.10 U		0.10 U			
Benzoic acid	65-85-0	--										
Benzyl alcohol	100-51-6	--										
Bis(2-chloroethoxy)methane	111-91-1	--										
Bis(2-ethylhexyl)phthalate	117-81-7	--										
Butyl benzyl phthalate	85-68-7	--										
Carbazole	86-74-8	--										
Chrysene	218-01-9	--					0.23		0.10 U			
Dibenzo(a,h)anthracene	53-70-3	--					0.10 U		0.10 U			
Indeno(1,2,3-c,d)pyrene	193-39-5	--					0.10 U		0.10 U			
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10					0.099		0.10 U			
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10					0.029		0.10 U			
Dibenzofuran	132-64-9	--										
Diethylphthalate	84-66-2	--										
Dimethyl phthalate	131-11-3	--										
Di-n-butyl phthalate	84-74-2	--										
Di-n-octyl phthalate	117-84-0	--										
Fluoranthene	206-44-0	640							1.8			
Fluorene	86-73-7	320							0.10 U			
Hexachlorobutadiene	87-68-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Hexachlorocyclopentadiene	77-47-4	--										
Isophorone	78-59-1	--										
Naphthalene	91-20-3	160 <sup>(3)</sup>	220 <sup>(3)</sup>	15 <sup>(3)</sup>	1.3 U <sup>(3)</sup>	1.3 U <sup>(3)</sup>	8,400 <sup>(3)</sup>	11,000 <sup>(3)</sup>	0.10 U <sup>(4)</sup>	210 <sup>(3)</sup>	12,000 <sup>(3)</sup>	7,500 <sup>(3)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--										
N-Nitrosodiphenylamine	86-30-6	--										
Pentachlorophenol	87-86-5	1.0										

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-11 (cont.)				MW-12					
Sample Name			MW11-09152020	MW-11-12172020	MW11-032921	MW11-06222021	WCD-MW12-42	WCD-MW12-120611	WCD-MW12-112712	WCD-MW12-030513	WCD-MW12-060413	WCD-MW12-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds (cont.)</b>												
Phenanthrene	85-01-8	--							0.10 U			
Phenol	108-95-2	4,800										
Pyrene	129-00-0	240							1.3			
Total Naphthalenes	--	160							0.10 U			
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	630-20-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,1-Trichloroethane	71-55-6	200	1.0 U	1.0 U	0.40 U	0.40 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,2,2-Tetrachloroethane	79-34-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1,2-Trichloroethane	79-00-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloroethane	75-34-3	7.7	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloroethene	75-35-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,1-Dichloropropene	563-58-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,3-Trichlorobenzene	87-61-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,3-Trichloropropane	96-18-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,4-Trichlorobenzene	120-82-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2,4-Trimethylbenzene	95-63-6	80	1.0 U	1.0 U	0.50 U	0.50 U	270	300	1.1	13	230	230
1,2-Dibromo-3-chloropropane	96-12-8	--					10 U	10 U	1.0 U	10 U	10 U	10 U
1,2-Dibromoethane	106-93-4	--					1.0 U	0.010 U	1.0 U	0.010 U	0.010 U	0.010 U
1,2-Dichlorobenzene	95-50-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloroethane	107-06-2	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane	78-87-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3,5-Trimethylbenzene	108-67-8	80	1.0 U	1.0 U	0.25 U	0.25 U	110	110	1.0 U	3.5	86	96
1,3-Dichlorobenzene	541-73-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,3-Dichloropropane	142-28-9	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
1,4-Dichlorobenzene	106-46-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2,2-Dichloropropane	594-20-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2,4-Dinitrotoluene	121-14-2	--										
2,6-Dinitrotoluene	606-20-2	--										
2-Chlorotoluene	95-49-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
2-Hexanone	591-78-6	--					10 U	10 U	1.0 U	10 U	10 U	10 U
2-Nitroaniline	88-74-4	--										
3-Nitroaniline	99-09-2	--										
4-Chloroaniline	106-47-8	--										
4-Chlorophenyl phenyl ether	7005-72-3	--										
4-Chlorotoluene	106-43-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
4-Nitroaniline	100-01-6	--										
Acetone	67-64-1	--					10 U	25 U	10 U	25 U	25 U	25 U
Benzene	71-43-2	5.0	1.0 U	1.0 U	0.44 U	0.44 U	13	12	1.0 U	2.0 U	14	13
Bis(2-chloroethyl)ether	111-44-4	--										
Bis(2-chloroisopropyl)ether	39638-32-9	--										
Bromobenzene	108-86-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromochloromethane	74-97-5	--						2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromodichloromethane	75-27-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromoform	75-25-2	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Bromomethane	74-83-9	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Carbon disulfide	75-15-0	--						2.0 U		2.0 U	2.0 U	2.0 U
Carbon tetrachloride	56-23-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chlorobenzene	108-90-7	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chloroethane	75-00-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Chloroform	67-66-3	70	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-11 (cont.)				MW-12					
Sample Name			MW11-09152020	MW-11-12172020	MW11-032921	MW11-06222021	WCD-MW12-42	WCD-MW12-120611	WCD-MW12-112712	WCD-MW12-030513	WCD-MW12-060413	WCD-MW12-100113
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	6/22/2010	12/6/2011	11/27/2012	3/5/2013	6/4/2013	10/1/2013
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
Volatile Organic Compounds (cont.)												
Chloromethane	74-87-3	--	2.0 U	2.0 U	0.75 U	0.75 U	10 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	156-59-2	70	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,3-Dichloropropene	10061-01-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Cymene	99-87-6	--					10	13		2.7	53	39
Dibromochloromethane	124-48-1	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dibromomethane	74-95-3	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Dichlorodifluoromethane	75-71-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Ethylbenzene	100-41-4	700	1.0 U	1.0 U	0.40 U	0.40 U	1,000	890	1.4	38	1,000	900
Hexachlorobenzene	118-74-1	--										
Hexachloroethane	67-72-1	--										
Isopropylbenzene	98-82-8	800	1.0 U	1.0 U	0.50 U	0.50 U	55	46	1.0 U	2.2	40	37
Methyl ethyl ketone	78-93-3	--			1.5 U		10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	640	1.3 U	1.3 U		1.3 U	10 U	10 U	1.0 U	10 U	10 U	10 U
Methylene chloride	75-09-2	--					5.0 U	5.0 U	1.0 U	5.0 U	5.0 U	5.0 U
Methyl-tert-butyl ether	1634-04-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
n-Butylbenzene	104-51-8	--						2.0 U		2.0 U	2.0 U	2.0 U
Nitrobenzene	98-95-3	--							1.0 U	2.0 U		2.0 U
n-Propylbenzene	103-65-1	800	1.0 U	1.0 U	0.50 U	0.50 U	16	16	1.0 U	2.0 U	17	15
sec-Butylbenzene	135-98-8	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Styrene	100-42-5	100	1.0 U	1.0 U	0.50 U	0.50 U	1.2	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
tert-Butylbenzene	98-06-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Tetrachloroethene	127-18-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Toluene	108-88-3	1,000	1.0 U	1.0 U	0.75 U	0.75 U	270	350	1.0 U	15	370	370
trans-1,2-Dichloroethene	156-60-5	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
trans-1,3-Dichloropropene	10061-02-6	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Trichloroethene	79-01-6	5.0	0.50 U	0.50 U	0.50 U	0.50 U	1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Trichlorofluoromethane	75-69-4	--					1.0 U	2.0 U	1.0 U	2.0 U	2.0 U	2.0 U
Vinyl chloride	75-01-4	--					0.20 U	0.20 U		0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3	--	1.0 U	1.0 U	1.0 U	1.0 U	1,100	940		16	1,100	1,000
Xylene (ortho)	95-47-6	--	1.0 U	1.0 U	0.50 U	0.50 U	600	530		30	610	530
Xylene (total)	1330-20-7	1,000	1.0 U <sup>(5)</sup>	1.0 U	1.0 U <sup>(5)</sup>	1.0 U <sup>(5)</sup>	1,700	1,500	1.0 U	46	1,700	1,500
Other												
PBDE-003	101-55-3	--										

Notes:

- Blank cells are intentional.  
 All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
 -- Not available or not established.  
**BOLD** Detected result exceeds criteria.  
 The screening level is a proposed Site cleanup level.

- 1 Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.  
 2 A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.  
 4 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd|Snider was preferred over laboratory reported result.

Abbreviations:

CAS = Chemical Abstracts Service  
 cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
 µg/L = Micrograms per liter  
 MTCA = Model Toxics Control Act  
 PBDE = Polybrominated diphenyl ethers  
 TEQ = Toxic equivalent  
 USEPA = U.S. Environmental Protection Agency

Qualifiers:

- J Analyte was detected and the concentration is estimated.  
 U Analyte is not detected at the associated reporting limit.  
 UJ Analyte is not detected at the associated reporting limit, which is an estimate.



Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-12 (cont.)				MW-14				MW-15	
Sample Name			MW12-09152020	MW12-12172020	MW12-032921	MW12-06222021	MW14-09162020	MW14-12172020	MW14-032921	MW14-06222021	MW15-09162020	MW15-12172020
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	9/16/2020	12/17/2020	3/29/2021	6/22/2021	9/16/2020	12/17/2020
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds</b>												
1-Methylnaphthalene	90-12-0	--					310				0.098 U	
2,4,5-Trichlorophenol	95-95-4	1,600					2.0 U				2.0 U	
2,4,6-Trichlorophenol	88-06-2	8.0					2.0 U				2.0 U	
2,4-Dichlorophenol	120-83-2	48					2.0 U				2.0 U	
2,4-Dimethylphenol	105-67-9	320					1.0				0.98 U	
2,4-Dinitrophenol	51-28-5	32					2.0 UJ				2.0 UJ	
2-Chloronaphthalene	91-58-7	--										
2-Chlorophenol	95-57-8	40					1.0 U				0.98 U	
2-Methylnaphthalene	91-57-6	--					240				0.098 U	
2-Methylphenol	95-48-7	800					1.0 U				0.98 U	
2-Nitrophenol	88-75-5	--					2.0 U				2.0 U	
3- & 4-Methylphenol	15831-10-4	800					1.9				0.98 U	
4,6-Dinitro-o-cresol	534-52-1	1.3					500 U				4.9 UJ	
4-Chloro-3-methylphenol	59-50-7	1,600					5.0 U				4.9 U	
4-Nitrophenol	100-02-7	1,600					5.0 UJ				4.9 UJ	
Acenaphthene	83-32-9	480					160				0.20 U	
Acenaphthylene	208-96-8	--					22				0.20 U	
Acrylonitrile	107-13-1	--										
Anthracene	120-12-7	2,400					7.6				0.098 U	
Benzo(a)anthracene	56-55-3	--					0.20 U				0.20 U	
Benzo(a)pyrene	50-32-8	--					0.10 U				0.098 U	
Benzo(b)fluoranthene	205-99-2	--					0.20 U				0.20 U	
Benzo(g,h,i)perylene	191-24-2	--					0.20 U				0.20 U	
Benzo(k)fluoranthene	207-08-9	--					0.20 U				0.20 U	
Benzoic acid	65-85-0	--										
Benzyl alcohol	100-51-6	--										
Bis(2-chloroethoxy)methane	111-91-1	--										
Bis(2-ethylhexyl)phthalate	117-81-7	--										
Butyl benzyl phthalate	85-68-7	--										
Carbazole	86-74-8	--										
Chrysene	218-01-9	--					0.20 U				0.20 U	
Dibenzo(a,h)anthracene	53-70-3	--					0.20 U				0.20 U	
Indeno(1,2,3-c,d)pyrene	193-39-5	--					0.10 U				0.098 U	
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10					0.10 U				0.098 U	
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10					0.10 U				0.098 U	
Dibenzofuran	132-64-9	--										
Diethylphthalate	84-66-2	--										
Dimethyl phthalate	131-11-3	--										
Di-n-butyl phthalate	84-74-2	--										
Di-n-octyl phthalate	117-84-0	--										
Fluoranthene	206-44-0	640					2.2				0.098 U	
Fluorene	86-73-7	320					58				0.098 U	
Hexachlorobutadiene	87-68-3	--										
Hexachlorocyclopentadiene	77-47-4	--										
Isophorone	78-59-1	--										
Naphthalene	91-20-3	160 <sup>(3)</sup>	4,800 <sup>(3)</sup>	14,000 <sup>(3)</sup>	13,000 <sup>(3)</sup>	17,000 <sup>(3)</sup>	6,700 <sup>(3)</sup>	3,600 <sup>(3)</sup>	5,300 <sup>(3)</sup>	7,900 <sup>(3)</sup>	2.0 U <sup>(3)</sup>	1.0 U <sup>(3)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--										
N-Nitrosodiphenylamine	86-30-6	--										
Pentachlorophenol	87-86-5	1.0					0.10 UJ				0.098 UJ	

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-12 (cont.)				MW-14				MW-15	
Sample Name			MW12-09152020	MW12-12172020	MW12-032921	MW12-06222021	MW14-09162020	MW14-12172020	MW14-032921	MW14-06222021	MW15-09162020	MW15-12172020
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	9/16/2020	12/17/2020	3/29/2021	6/22/2021	9/16/2020	12/17/2020
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds (cont.)</b>												
Phenanthrene	85-01-8	--					41				0.098 U	
Phenol	108-95-2	4,800					2.0 UJ				2.0 UJ	
Pyrene	129-00-0	240					1.7				0.20 U	
Total Naphthalenes	--	160					7,300				2.0 U	
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	630-20-6	--										
1,1,1-Trichloroethane	71-55-6	200	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U	4.0 U	4.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	79-34-5	--										
1,1,2-Trichloroethane	79-00-5	--										
1,1-Dichloroethane	75-34-3	7.7	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U
1,1-Dichloroethene	75-35-4	--										
1,1-Dichloropropene	563-58-6	--										
1,2,3-Trichlorobenzene	87-61-6	--										
1,2,3-Trichloropropane	96-18-4	--										
1,2,4-Trichlorobenzene	120-82-1	--										
1,2,4-Trimethylbenzene	95-63-6	80	140	390	390	350	88	63	61	59	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	96-12-8	--										
1,2-Dibromoethane	106-93-4	--										
1,2-Dichlorobenzene	95-50-1	--										
1,2-Dichloroethane	107-06-2	--										
1,2-Dichloropropane	78-87-5	--										
1,3,5-Trimethylbenzene	108-67-8	80	40	120	130	110	24	18	13	13	1.0 U	1.0 U
1,3-Dichlorobenzene	541-73-1	--										
1,3-Dichloropropane	142-28-9	--										
1,4-Dichlorobenzene	106-46-7	--										
2,2-Dichloropropane	594-20-7	--										
2,4-Dinitrotoluene	121-14-2	--										
2,6-Dinitrotoluene	606-20-2	--										
2-Chlorotoluene	95-49-8	--										
2-Hexanone	591-78-6	--										
2-Nitroaniline	88-74-4	--										
3-Nitroaniline	99-09-2	--										
4-Chloroaniline	106-47-8	--										
4-Chlorophenyl phenyl ether	7005-72-3	--										
4-Chlorotoluene	106-43-4	--										
4-Nitroaniline	100-01-6	--										
Acetone	67-64-1	--										
Benzene	71-43-2	5.0	8.8	9.3	6.1	11	1.0 U	1.0 U	4.4 U	4.4 U	1.0 U	1.0 U
Bis(2-chloroethyl)ether	111-44-4	--										
Bis(2-chloroisopropyl)ether	39638-32-9	--										
Bromobenzene	108-86-1	--										
Bromochloromethane	74-97-5	--										
Bromodichloromethane	75-27-4	--										
Bromoform	75-25-2	--										
Bromomethane	74-83-9	--										
Carbon disulfide	75-15-0	--										
Carbon tetrachloride	56-23-5	--										
Chlorobenzene	108-90-7	--										
Chloroethane	75-00-3	--										
Chloroform	67-66-3	70	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U

**Table 5.1**  
**Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)**

Location Name			MW-12 (cont.)				MW-14				MW-15	
Sample Name			MW12-09152020	MW12-12172020	MW12-032921	MW12-06222021	MW14-09162020	MW14-12172020	MW14-032921	MW14-06222021	MW15-09162020	MW15-12172020
Sample Date			9/15/2020	12/17/2020	3/29/2021	6/22/2021	9/16/2020	12/17/2020	3/29/2021	6/22/2021	9/16/2020	12/17/2020
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Volatile Organic Compounds (cont.)</b>												
Chloromethane	74-87-3	--	2.0 U	2.0 U	7.5 U	7.5 U	2.0 U	2.0 U	7.5 U	7.5 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	156-59-2	70	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	10061-01-5	--										
Cymene	99-87-6	--										
Dibromochloromethane	124-48-1	--										
Dibromomethane	74-95-3	--										
Dichlorodifluoromethane	75-71-8	--										
Ethylbenzene	100-41-4	700	410	1,100	1,100	1,100	40	42	42	54	1.0 U	1.0 U
Hexachlorobenzene	118-74-1	--										
Hexachloroethane	67-72-1	--										
Isopropylbenzene	98-82-8	800	54 J	1.0 U	55	51	12	9.8	7.5	9.8	1.0 U	1.0 U
Methyl ethyl ketone	78-93-3	--			15 U				15 U			
Methyl isobutyl ketone	108-10-1	640	1.3 U	1.3 U		13 U	1.3 U	1.3 U		13 U	1.3 U	1.3 U
Methylene chloride	75-09-2	--										
Methyl-tert-butyl ether	1634-04-4	--										
n-Butylbenzene	104-51-8	--										
Nitrobenzene	98-95-3	--										
n-Propylbenzene	103-65-1	800	20	27	20	17	6.1	4.6	5.0 U	5.0	1.0 U	1.0 U
sec-Butylbenzene	135-98-8	--										
Styrene	100-42-5	100	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U	5.0 U	5.0 U	1.0 U	1.0 U
tert-Butylbenzene	98-06-6	--										
Tetrachloroethene	127-18-4	--										
Toluene	108-88-3	1,000	130	360	400	380	3.0	3.2	7.5 U	7.5 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	156-60-5	--										
trans-1,3-Dichloropropene	10061-02-6	--										
Trichloroethene	79-01-6	5.0	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U	0.50 U	5.0 U	5.0 U	0.50 U	0.50 U
Trichlorofluoromethane	75-69-4	--										
Vinyl chloride	75-01-4	--										
Xylene (meta & para)	108-38-3/106-42-3	--	460	1,300	1,200	1,200	40	35	31	35	1.0 U	1.0 U
Xylene (ortho)	95-47-6	--	280	660	600	630	38	32	30	39	1.0 U	1.0 U
Xylene (total)	1330-20-7	1,000	740 <sup>(5)</sup>	2,000	1,800 <sup>(5)</sup>	1,800 <sup>(5)</sup>	77 <sup>(5)</sup>	68	61 <sup>(5)</sup>	74 <sup>(5)</sup>	1.0 U <sup>(5)</sup>	1.0 U
<b>Other</b>												
PBDE-003	101-55-3	--										

Notes:

Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd/Snider was preferred over laboratory reported result.

Abbreviations:

CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

Qualifiers:

- J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-15 (cont.)		MW-16				MW-17			
Sample Name			MW15-032921	MW15-06222021	MW16-09152020	MW-16-12172020	MW16-032921 <sup>(2)</sup>	MW16-06222021	MW17-09152020	MW-17-12172020	MW17-032921	MW17-06222021
Sample Date			3/29/2021	6/22/2021	9/15/2020	12/17/2020	3/29/2021	6/22/2021	9/15/2020	12/17/2020	3/29/2021	6/22/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds</b>												
1-Methylnaphthalene	90-12-0	--			1.3				0.10			
2,4,5-Trichlorophenol	95-95-4	1,600			2.0 U				2.0 U			
2,4,6-Trichlorophenol	88-06-2	8.0			2.0 U				2.0 U			
2,4-Dichlorophenol	120-83-2	48			2.0 U				2.0 U			
2,4-Dimethylphenol	105-67-9	320			0.98 U				1.0 U			
2,4-Dinitrophenol	51-28-5	32			2.0 UJ				2.0 UJ			
2-Chloronaphthalene	91-58-7	--										
2-Chlorophenol	95-57-8	40			0.98 U				1.0 U			
2-Methylnaphthalene	91-57-6	--			1.1				0.10 U			
2-Methylphenol	95-48-7	800			0.98 U				1.0 U			
2-Nitrophenol	88-75-5	--			2.0 U				2.0 U			
3- & 4-Methylphenol	15831-10-4	800			0.98 U				1.0 U			
4,6-Dinitro-o-cresol	534-52-1	1.3			49 U				5.0 UJ			
4-Chloro-3-methylphenol	59-50-7	1,600			4.9 U				5.0 U			
4-Nitrophenol	100-02-7	1,600			4.9 UJ				5.0 UJ			
Acenaphthene	83-32-9	480			0.80				0.20 U			
Acenaphthylene	208-96-8	--			0.20 U				0.20 U			
Acrylonitrile	107-13-1	--										
Anthracene	120-12-7	2,400			0.098 U				0.10 U			
Benzo(a)anthracene	56-55-3	--			0.20 U				0.20 U			
Benzo(a)pyrene	50-32-8	--			0.098 U				0.10 U			
Benzo(b)fluoranthene	205-99-2	--			0.20 U				0.20 U			
Benzo(g,h,i)perylene	191-24-2	--			0.20 U				0.20 U			
Benzo(k)fluoranthene	207-08-9	--			0.20 U				0.20 U			
Benzoic acid	65-85-0	--										
Benzyl alcohol	100-51-6	--										
Bis(2-chloroethoxy)methane	111-91-1	--										
Bis(2-ethylhexyl)phthalate	117-81-7	--										
Butyl benzyl phthalate	85-68-7	--										
Carbazole	86-74-8	--										
Chrysene	218-01-9	--			0.20 U				0.20 U			
Dibenzo(a,h)anthracene	53-70-3	--			0.20 U				0.20 U			
Indeno(1,2,3-c,d)pyrene	193-39-5	--			0.098 U				0.10 U			
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10			0.098 U				0.10 U			
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10			0.098 U				0.10 U			
Dibenzofuran	132-64-9	--										
Diethylphthalate	84-66-2	--										
Dimethyl phthalate	131-11-3	--										
Di-n-butyl phthalate	84-74-2	--										
Di-n-octyl phthalate	117-84-0	--										
Fluoranthene	206-44-0	640			0.098 U				0.10 U			
Fluorene	86-73-7	320			0.24				0.10 U			
Hexachlorobutadiene	87-68-3	--										
Hexachlorocyclopentadiene	77-47-4	--										
Isophorone	78-59-1	--										
Naphthalene	91-20-3	160 <sup>(3)</sup>	1.3 U <sup>(3)</sup>	1.5 <sup>(3)</sup>	21	1,600 <sup>(3)</sup>	3,100 <sup>(3)</sup>	75 <sup>(3)</sup>	2.0 U <sup>(3)</sup>	70 <sup>(3)</sup>	1.3 <sup>(3)</sup>	1.8 <sup>(3)</sup>
N-Nitroso-di-n-propylamine	621-64-7	--										
N-Nitrosodiphenylamine	86-30-6	--										
Pentachlorophenol	87-86-5	1.0			0.098 UJ				0.10 UJ			

Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-15 (cont.)		MW-16				MW-17			
Sample Name			MW15-032921	MW15-06222021	MW16-09152020	MW-16-12172020	MW16-032921 <sup>(2)</sup>	MW16-06222021	MW17-09152020	MW-17-12172020	MW17-032921	MW17-06222021
Sample Date			3/29/2021	6/22/2021	9/15/2020	12/17/2020	3/29/2021	6/22/2021	9/15/2020	12/17/2020	3/29/2021	6/22/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Semivolatile Organic Compounds (cont.)</b>												
Phenanthrene	85-01-8	--			0.098 U				0.10 U			
Phenol	108-95-2	4,800			2.0 UJ				2.0 UJ			
Pyrene	129-00-0	240			0.20 U				0.20 U			
Total Naphthalenes	--	160			23				0.10			
<b>Volatile Organic Compounds</b>												
1,1,1,2-Tetrachloroethane	630-20-6	--										
1,1,1-Trichloroethane	71-55-6	200	0.40 U	0.40 U	1.0 U	1.0 U	0.40 UJ	0.40 U	1.0 U	1.0 U	0.40 U	0.40 U
1,1,2,2-Tetrachloroethane	79-34-5	--										
1,1,2-Trichloroethane	79-00-5	--										
1,1-Dichloroethane	75-34-3	7.7	0.50 U	0.50 U	1.0 U	1.0 U	0.50 UJ	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U
1,1-Dichloroethene	75-35-4	--										
1,1-Dichloropropene	563-58-6	--										
1,2,3-Trichlorobenzene	87-61-6	--										
1,2,3-Trichloropropane	96-18-4	--										
1,2,4-Trichlorobenzene	120-82-1	--										
1,2,4-Trimethylbenzene	95-63-6	80	0.50 U	0.50 U	2.2	59	88	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U
1,2-Dibromo-3-chloropropane	96-12-8	--										
1,2-Dibromoethane	106-93-4	--										
1,2-Dichlorobenzene	95-50-1	--										
1,2-Dichloroethane	107-06-2	--										
1,2-Dichloropropane	78-87-5	--										
1,3,5-Trimethylbenzene	108-67-8	80	0.25 U	0.25 U	1.0 U	25	31	0.25 U	1.0 U	1.0 U	0.25 U	0.25 U
1,3-Dichlorobenzene	541-73-1	--										
1,3-Dichloropropane	142-28-9	--										
1,4-Dichlorobenzene	106-46-7	--										
2,2-Dichloropropane	594-20-7	--										
2,4-Dinitrotoluene	121-14-2	--										
2,6-Dinitrotoluene	606-20-2	--										
2-Chlorotoluene	95-49-8	--										
2-Hexanone	591-78-6	--										
2-Nitroaniline	88-74-4	--										
3-Nitroaniline	99-09-2	--										
4-Chloroaniline	106-47-8	--										
4-Chlorophenyl phenyl ether	7005-72-3	--										
4-Chlorotoluene	106-43-4	--										
4-Nitroaniline	100-01-6	--										
Acetone	67-64-1	--										
Benzene	71-43-2	5.0	0.44 U	0.44 U	1.0 U	2.7	1.9	0.44 U	1.0 U	1.0 U	0.44 U	0.44 U
Bis(2-chloroethyl)ether	111-44-4	--										
Bis(2-chloroisopropyl)ether	39638-32-9	--										
Bromobenzene	108-86-1	--										
Bromochloromethane	74-97-5	--										
Bromodichloromethane	75-27-4	--										
Bromoform	75-25-2	--										
Bromomethane	74-83-9	--										
Carbon disulfide	75-15-0	--										
Carbon tetrachloride	56-23-5	--										
Chlorobenzene	108-90-7	--										
Chloroethane	75-00-3	--										
Chloroform	67-66-3	70	0.50 U	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U



Table 5.1  
Groundwater Monitoring Well Analytical Data 2010–2021 (µg/L)

Location Name			MW-15 (cont.)		MW-16				MW-17			
Sample Name			MW15-032921	MW15-06222021	MW16-09152020	MW-16-12172020	MW16-032921 <sup>(2)</sup>	MW16-06222021	MW17-09152020	MW-17-12172020	MW17-032921	MW17-06222021
Sample Date			3/29/2021	6/22/2021	9/15/2020	12/17/2020	3/29/2021	6/22/2021	9/15/2020	12/17/2020	3/29/2021	6/22/2021
Analyte	CAS No.	Screening Level <sup>(1)</sup>										
<b>Volatile Organic Compounds (cont.)</b>												
Chloromethane	74-87-3	--	0.75 U	0.75 U	2.0 U	2.0 U	0.75 UJ	0.75 U	2.0 U	2.0 U	0.75 U	0.75 U
cis-1,2-Dichloroethene	156-59-2	70	0.50 U	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U
cis-1,3-Dichloropropene	10061-01-5	--										
Cymene	99-87-6	--										
Dibromochloromethane	124-48-1	--										
Dibromomethane	74-95-3	--										
Dichlorodifluoromethane	75-71-8	--										
Ethylbenzene	100-41-4	700	0.40 U	0.40 U	4.6	200	230	0.40 U	1.0 U	1.0 U	0.40 U	0.40 U
Hexachlorobenzene	118-74-1	--										
Hexachloroethane	67-72-1	--										
Isopropylbenzene	98-82-8	800	0.50 U	0.50 U	1.0 U	11	16	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U
Methyl ethyl ketone	78-93-3	--	1.5 U				1.5 U				1.5 U	
Methyl isobutyl ketone	108-10-1	640		1.3 U	1.3 U	1.3 U		1.3 U	1.3 U	1.3 U		1.3 U
Methylene chloride	75-09-2	--										
Methyl-tert-butyl ether	1634-04-4	--										
n-Butylbenzene	104-51-8	--										
Nitrobenzene	98-95-3	--										
n-Propylbenzene	103-65-1	800	0.50 U	0.50 U	1.0 U	3.3	5.0	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U
sec-Butylbenzene	135-98-8	--										
Styrene	100-42-5	100	0.50 U	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U	1.0 U	1.0 U	0.50 U	0.50 U
tert-Butylbenzene	98-06-6	--										
Tetrachloroethene	127-18-4	--										
Toluene	108-88-3	1,000	0.75 U	0.75 U	1.0 U	39	47	0.75 U	1.0 U	1.0 U	0.75 U	0.75 U
trans-1,2-Dichloroethene	156-60-5	--										
trans-1,3-Dichloropropene	10061-02-6	--										
Trichloroethene	79-01-6	5.0	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane	75-69-4	--										
Vinyl chloride	75-01-4	--										
Xylene (meta & para)	108-38-3/106-42-3	--	1.0 U	1.0 U	5.3	150	160	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylene (ortho)	95-47-6	--	0.50 U	0.50 U	3.3	120	180	0.86	1.0 U	1.0 U	0.50 U	0.50 U
Xylene (total)	1330-20-7	1,000	1.0 U <sup>(5)</sup>	1.0 U <sup>(6)</sup>	8.5 <sup>(5)</sup>	260	340 <sup>(5)</sup>	0.86	1.0 U <sup>(5)</sup>	1.0 U	1.0 U <sup>(5)</sup>	1.0 U <sup>(5)</sup>
<b>Other</b>												
PBDE-003	101-55-3	--										

## Notes:

Blank cells are intentional.  
All criteria and results are rounded to two significant figures. Field parameters are not rounded.  
-- Not available or not established.  
**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

- Groundwater screening levels for chemicals of interest are established in Table 5.2. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.
- A field duplicate was collected with this sample. The highest detected result was selected and compared to criteria. If neither result was detected, the lowest RL was selected. 3 Where naphthalene was run by USEPA 8260 only, the naphthalene result is compared to the screening level for total naphthalenes.
- Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level. 5 Xylene (total) as calculated by Floyd|Snider was preferred over laboratory reported result.

## Abbreviations:

CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
PBDE = Polybrominated diphenyl ethers  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

## Qualifiers:

J Analyte was detected and the concentration is estimated.  
U Analyte is not detected at the associated reporting limit.  
UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-01	SB-02	SB-03	SB-04	SB-05	SB-06		SB-07		SB-08		SB-09	
Sample Name		SB1-34-GW	SB2-34-GW	SB3-33-GW	SB4-35-GW	SB5-35-GW	SB06-22-RGW	SB06-37-RGW	SB07-24-RGW	SB07-37-RGW	SB08-26-RGW	SB08-42-RGW	SB09-32-RGW	SB09-43-RGW
Sample Date		1/29/2007	1/29/2007	1/31/2007	5/11/2007	5/11/2007	4/2/2009	4/2/2009	4/2/2009	4/2/2009	4/1/2009	4/2/2009	4/1/2009	4/1/2009
Analyte	CAS No.													
Semivolatile Organic Compounds														
1-Methylnaphthalene	90-12-0	0.87	0.50	0.20	0.12 U	190								
2-Methylnaphthalene	91-57-6	0.95	0.37	0.26	0.12 U	310								
Acenaphthene	83-32-9	0.86	0.61	0.18	0.12 U	170								
Acenaphthylene	208-96-8	0.12 U	0.096 U	0.14 U	0.12 U	11 U								
Anthracene	120-12-7	0.13	0.11	0.17	0.12 U	30								
Benzo(a)anthracene	56-55-3	0.081	0.011	0.15	0.020	14								
Benzo(a)pyrene	50-32-8	0.095	0.014	0.12	0.14	6.3								
Benzo(b)fluoranthene	205-99-2	0.093	0.026	0.14	0.16	8.8								
Benzo(g,h,i)perylene	191-24-2	0.072	0.020	0.079	0.19	2.3								
Benzo(k)fluoranthene	207-08-9	0.032	0.0096 U	0.051	0.054	3.9								
Chrysene	218-01-9	0.10	0.020	0.17	0.11	13								
Dibenzo(a,h)anthracene	53-70-3	0.015	0.0096 U	0.021	0.039	1.1 U								
Indeno(1,2,3-c,d)pyrene	193-39-5	0.056	0.013	0.065	0.15	2.4								
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.12	0.020	0.16	0.18	9.4								
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.12	0.019	0.16	0.18	9.3								
Fluoranthene	206-44-0	0.16	0.096 U	0.39	0.12 U	71								
Fluorene	86-73-7	0.57	0.36	0.18	0.12 U	120								
Hexachlorobutadiene	87-68-3						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Naphthalene	91-20-3	5.7	1.0	0.76	0.12 U	1,200	1.0 U	1.3	1.0 U	1.0 U	1.0 U	1.0 U	11	4,500
Pentachlorophenol	87-86-5													
Phenanthrene	85-01-8	0.70	0.62	0.79	0.12 U	200								
Pyrene	129-00-0	0.21	0.096 U	0.42	0.12 U	51								
Total Naphthalenes	--	7.5	1.9	1.2	0.12 U	1,700								
Volatile Organic Compounds														
1,1,1,2-Tetrachloroethane	630-20-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,1,1-Trichloroethane	71-55-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,1,2,2-Tetrachloroethane	79-34-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,1,2-Trichloroethane	79-00-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,1-Dichloroethane	75-34-3						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,1-Dichloroethene	75-35-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,1-Dichloropropene	563-58-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2,3-Trichlorobenzene	87-61-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2,3-Trichloropropane	96-18-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2,4-Trichlorobenzene	120-82-1						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2,4-Trimethylbenzene	95-63-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	1.2	140
1,2-Dibromo-3-chloropropane	96-12-8						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
1,2-Dibromoethane	106-93-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2-Dichlorobenzene	95-50-1						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2-Dichloroethane	107-06-2						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,2-Dichloropropane	78-87-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,3,5-Trimethylbenzene	108-67-8						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.73	60
1,3-Dichlorobenzene	541-73-1						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
1,3-Dichloropropane	142-28-9						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-01	SB-02	SB-03	SB-04	SB-05	SB-06		SB-07		SB-08		SB-09	
Sample Name		SB1-34-GW	SB2-34-GW	SB3-33-GW	SB4-35-GW	SB5-35-GW	SB06-22-RGW	SB06-37-RGW	SB07-24-RGW	SB07-37-RGW	SB08-26-RGW	SB08-42-RGW	SB09-32-RGW	SB09-43-RGW
Sample Date		1/29/2007	1/29/2007	1/31/2007	5/11/2007	5/11/2007	4/2/2009	4/2/2009	4/2/2009	4/2/2009	4/1/2009	4/2/2009	4/1/2009	4/1/2009
Analyte	CAS No.													
Volatile Organic Compounds (cont.)														
1,4-Dichlorobenzene	106-46-7						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
2,2-Dichloropropane	594-20-7						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
2-Chloroethyl vinyl ether	110-75-8						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
2-Chlorotoluene	95-49-8						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
2-Hexanone	591-78-6						2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	200 U
4-Chlorotoluene	106-43-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Acetone	67-64-1						5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	500 U
Benzene	71-43-2						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Bromobenzene	108-86-1						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Bromochloromethane	74-97-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Bromodichloromethane	75-27-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Bromoform	75-25-2						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
Bromomethane	74-83-9						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Carbon disulfide	75-15-0						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Carbon tetrachloride	56-23-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Chlorobenzene	108-90-7						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Chloroethane	75-00-3						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
Chloroform	67-66-3						1.1	0.20 U	1.0	1.6	1.1	0.64	0.26	20 U
Chloromethane	74-87-3						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
cis-1,2-Dichloroethene	156-59-2						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
cis-1,3-Dichloropropene	10061-01-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Cymene	99-87-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.75	20 U
Dibromochloromethane	124-48-1						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Dibromomethane	74-95-3						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Dichlorodifluoromethane	75-71-8						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Ethylbenzene	100-41-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.25	20 U
Iodomethane	74-88-4						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
Isopropylbenzene	98-82-8						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.95	20 U
Methyl ethyl ketone	78-93-3						5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	5.0 U	500 U
Methyl isobutyl ketone	108-10-1						2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	200 U
Methylene chloride	75-09-2						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
Methyl-tert-butyl ether	1634-04-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
n-Butylbenzene	104-51-8						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	47
n-Propylbenzene	103-65-1						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.81	20 U
sec-Butylbenzene	135-98-8						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.66	20 U
Styrene	100-42-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
tert-Butylbenzene	98-06-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Tetrachloroethene	127-18-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Toluene	108-88-3						1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100 U
trans-1,2-Dichloroethene	156-60-5						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
trans-1,3-Dichloropropene	10061-02-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Trichloroethene	79-01-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Trichlorofluoromethane	75-69-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-01	SB-02	SB-03	SB-04	SB-05	SB-06		SB-07		SB-08		SB-09	
Sample Name		SB1-34-GW	SB2-34-GW	SB3-33-GW	SB4-35-GW	SB5-35-GW	SB06-22-RGW	SB06-37-RGW	SB07-24-RGW	SB07-37-RGW	SB08-26-RGW	SB08-42-RGW	SB09-32-RGW	SB09-43-RGW
Sample Date		1/29/2007	1/29/2007	1/31/2007	5/11/2007	5/11/2007	4/2/2009	4/2/2009	4/2/2009	4/2/2009	4/1/2009	4/2/2009	4/1/2009	4/1/2009
Analyte	CAS No.													
Volatile Organic Compounds (cont.)														
Vinyl acetate	108-05-4						2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	2.0 U	200 U
Vinyl chloride	75-01-4						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Xylene (meta & para)	108-38-3/106-42-3						0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	40 U
Xylene (ortho)	95-47-6						0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	20 U
Xylene (total)	1330-20-7						0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	0.40 U	40 U

Notes:

Blank cells are intentional.

Analytical results are reported to two significant figures.

-- Not available or not established.

1 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here.

Abbreviations:

CAS = Chemical Abstracts Service

cPAH = Carcinogenic polycyclic aromatic hydrocarbon

µg/L = Micrograms per liter

MTCA = Model Toxics Control Act

TEQ = Toxic equivalent

USEPA = U.S. Environmental Protection Agency

Qualifier:

U Analyte is not detected at the associated reporting limit.

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-10		SB-11		SB-21		SB-22	SB-23	SB-24	SB-25	
Sample Name		SB10-29	SB10-44	SB11-29	SB11-44	WCD-SB21-24.0-120611	WCD-SB21-39.0-120611	WCD-SB22-39.0-120611	WCD-SB23-39.0-120611	WCD-SB24-39.0-120611	WCD-SB25-23.0-121211	WCD-SB25-37.0-121211
Sample Date		5/12/2009	5/12/2009	5/12/2009	5/12/2009	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/12/2011	12/12/2011
Analyte	CAS No.											
Semivolatile Organic Compounds												
1-Methylnaphthalene	90-12-0											
2-Methylnaphthalene	91-57-6											
Acenaphthene	83-32-9											
Acenaphthylene	208-96-8											
Anthracene	120-12-7											
Benzo(a)anthracene	56-55-3											
Benzo(a)pyrene	50-32-8											
Benzo(b)fluoranthene	205-99-2											
Benzo(g,h,i)perylene	191-24-2											
Benzo(k)fluoranthene	207-08-9											
Chrysene	218-01-9											
Dibenzo(a,h)anthracene	53-70-3											
Indeno(1,2,3-c,d)pyrene	193-39-5											
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)											
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)											
Fluoranthene	206-44-0											
Fluorene	86-73-7											
Hexachlorobutadiene	87-68-3	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	91-20-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	640	1.0 U	920	1.0 U	1.0 U	1.0 U
Pentachlorophenol	87-86-5											
Phenanthrene	85-01-8											
Pyrene	129-00-0											
Total Naphthalenes	--											
Volatile Organic Compounds												
1,1,1,2-Tetrachloroethane	630-20-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	71-55-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	79-34-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	79-00-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	75-34-3	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	75-35-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	563-58-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	87-61-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	96-18-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	120-82-1	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	95-63-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	19	1.0 U	25	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	96-12-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	106-93-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	95-50-1	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	107-06-2	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	78-87-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	108-67-8	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	6.9	1.0 U	8.3	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	541-73-1	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane	142-28-9	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U



Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-10		SB-11		SB-21		SB-22	SB-23	SB-24	SB-25	
Sample Name		SB10-29	SB10-44	SB11-29	SB11-44	WCD-SB21-24.0-120611	WCD-SB21-39.0-120611	WCD-SB22-39.0-120611	WCD-SB23-39.0-120611	WCD-SB24-39.0-120611	WCD-SB25-23.0-121211	WCD-SB25-37.0-121211
Sample Date		5/12/2009	5/12/2009	5/12/2009	5/12/2009	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/12/2011	12/12/2011
Analyte	CAS No.											
Volatile Organic Compounds (cont.)												
1,4-Dichlorobenzene	106-46-7	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	594-20-7	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chloroethyl vinyl ether	110-75-8	1.0 U	1.0 U	1.0 U	1.0 U							
2-Chlorotoluene	95-49-8	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	591-78-6	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	106-43-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	67-64-1	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	71-43-2	0.20 U	0.72	0.20 U	0.20 U	1.0 U	14	1.0 U	3.1	1.0 U	1.0 U	1.0 U
Bromobenzene	108-86-1	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	74-97-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	75-27-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	75-25-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	74-83-9	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	75-15-0	0.20 U	0.41	0.20 U	0.20 U							
Carbon tetrachloride	56-23-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	108-90-7	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	75-00-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	67-66-3	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	74-87-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	2.0
cis-1,2-Dichloroethene	156-59-2	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	10061-01-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cymene	99-87-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	124-48-1	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	74-95-3	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	75-71-8	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	100-41-4	0.20 U	1.3	0.20 U	0.20 U	1.0 U	91	1.0 U	85	1.0 U	1.0 U	1.0 U
Iodomethane	74-88-4	1.0 U	1.0 U	1.0 U	1.0 U							
Isopropylbenzene	98-82-8	0.20 U	0.20 U	0.20 U	0.25	1.0 U	3.2	1.0 U	6.4	1.0 U	1.0 U	1.0 U
Methyl ethyl ketone	78-93-3	5.0 U	5.0 U	5.0 U	5.0 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	2.0 U	2.0 U	2.0 U	2.0 U	1.0 U	6.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	75-09-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl-tert-butyl ether	1634-04-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	104-51-8	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	103-65-1	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.1	1.0 U	2.0	1.0 U	1.0 U	1.0 U
sec-Butylbenzene	135-98-8	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	100-42-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	98-06-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	127-18-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	108-88-3	1.0 U	1.3	1.8	1.5	1.4	39	1.0 U	13	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	156-60-5	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	10061-02-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	79-01-6	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	75-69-4	0.20 U	0.20 U	0.20 U	0.20 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-10		SB-11		SB-21		SB-22	SB-23	SB-24	SB-25	
Sample Name		SB10-29	SB10-44	SB11-29	SB11-44	WCD-SB21-24.0-120611	WCD-SB21-39.0-120611	WCD-SB22-39.0-120611	WCD-SB23-39.0-120611	WCD-SB24-39.0-120611	WCD-SB25-23.0-121211	WCD-SB25-37.0-121211
Sample Date		5/12/2009	5/12/2009	5/12/2009	5/12/2009	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/6/2011	12/12/2011	12/12/2011
Analyte	CAS No.											
Volatile Organic Compounds (cont.)												
Vinyl acetate	108-05-4	2.0 U	2.0 U	2.0 U	2.0 U							
Vinyl chloride	75-01-4	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3	0.40 U	0.40 U	0.40 U	0.40 U							
Xylene (ortho)	95-47-6	0.20 U	0.20 U	0.20 U	0.20 U							
Xylene (total)	1330-20-7	0.40 U	0.40 U	0.40 U	0.40 U	1.0 U	97	1.0 U	61	1.0 U	1.0 U	1.0 U

Notes:

- Blank cells are intentional.
- Analytical results are reported to two significant figures.
- Not available or not established.
- 1 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here.

Abbreviations:

- CAS = Chemical Abstracts Service
- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- µg/L = Micrograms per liter
- MTCA = Model Toxics Control Act
- TEQ = Toxic equivalent
- USEPA = U.S. Environmental Protection Agency

Qualifier:

- U Analyte is not detected at the associated reporting limit.

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-26		SB-27		SB-28	SB-29		SB-31	
Sample Name		WCD-SB26-23.0-121211	WCD-SB26-37.0-121211	WCD-SB27-23.0-121211	WCD-SB27-37.0-121211	WCD-SB28-23.0-121211	WCD-SB29-25.0-120611	WCD-SB29-39.0-120611	WCD-SB31-22-26'	WCD-SB31-36-40'
Sample Date		12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/6/2011	12/6/2011	11/12/2012	11/12/2012
Analyte	CAS No.									
Semivolatile Organic Compounds										
1-Methylnaphthalene	90-12-0									
2-Methylnaphthalene	91-57-6									
Acenaphthene	83-32-9									
Acenaphthylene	208-96-8									
Anthracene	120-12-7									
Benzo(a)anthracene	56-55-3									
Benzo(a)pyrene	50-32-8									
Benzo(b)fluoranthene	205-99-2									
Benzo(g,h,i)perylene	191-24-2									
Benzo(k)fluoranthene	207-08-9									
Chrysene	218-01-9									
Dibenzo(a,h)anthracene	53-70-3									
Indeno(1,2,3-c,d)pyrene	193-39-5									
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)									
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)									
Fluoranthene	206-44-0									
Fluorene	86-73-7									
Hexachlorobutadiene	87-68-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	91-20-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	5,400	1,400	2,700
Pentachlorophenol	87-86-5									
Phenanthrene	85-01-8									
Pyrene	129-00-0									
Total Naphthalenes	--									
Volatile Organic Compounds										
1,1,1,2-Tetrachloroethane	630-20-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	71-55-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	79-34-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	79-00-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	75-34-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	75-35-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	563-58-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	87-61-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	96-18-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	120-82-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	95-63-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	140	9.0	60
1,2-Dibromo-3-chloropropane	96-12-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	106-93-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	95-50-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	107-06-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	78-87-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	108-67-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	51	3.0	20
1,3-Dichlorobenzene	541-73-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane	142-28-9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-26		SB-27		SB-28	SB-29		SB-31	
Sample Name		WCD-SB26-23.0-121211	WCD-SB26-37.0-121211	WCD-SB27-23.0-121211	WCD-SB27-37.0-121211	WCD-SB28-23.0-121211	WCD-SB29-25.0-120611	WCD-SB29-39.0-120611	WCD-SB31-22-26'	WCD-SB31-36-40'
Sample Date		12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/6/2011	12/6/2011	11/12/2012	11/12/2012
Analyte	CAS No.									
Volatile Organic Compounds (cont.)										
1,4-Dichlorobenzene	106-46-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	594-20-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chloroethyl vinyl ether	110-75-8									
2-Chlorotoluene	95-49-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	591-78-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	106-43-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	67-64-1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	71-43-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	7.7	1.0 U	1.4
Bromobenzene	108-86-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	74-97-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	75-27-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	75-25-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	74-83-9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	75-15-0									
Carbon tetrachloride	56-23-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	108-90-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	75-00-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	67-66-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	74-87-3	1.0 U	2.3	1.0 U	3.3	1.0	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	156-59-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	10061-01-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cymene	99-87-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	124-48-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	74-95-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	75-71-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	100-41-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	620	24	150
Iodomethane	74-88-4									
Isopropylbenzene	98-82-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	23	1.0	10
Methyl ethyl ketone	78-93-3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	75-09-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl-tert-butyl ether	1634-04-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	104-51-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	103-65-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	10	1.0 U	4.0
sec-Butylbenzene	135-98-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	100-42-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	98-06-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	127-18-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	108-88-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	95	3.5	20
trans-1,2-Dichloroethene	156-60-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	10061-02-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	79-01-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.2	1.0 U	1.0 U	1.0 U
Trichlorofluoromethane	75-69-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-26		SB-27		SB-28	SB-29		SB-31	
Sample Name		WCD-SB26-23.0-121211	WCD-SB26-37.0-121211	WCD-SB27-23.0-121211	WCD-SB27-37.0-121211	WCD-SB28-23.0-121211	WCD-SB29-25.0-120611	WCD-SB29-39.0-120611	WCD-SB31-22-26'	WCD-SB31-36-40'
Sample Date		12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/12/2011	12/6/2011	12/6/2011	11/12/2012	11/12/2012
Analyte	CAS No.									
Volatile Organic Compounds (cont.)										
Vinyl acetate	108-05-4									
Vinyl chloride	75-01-4	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3									
Xylene (ortho)	95-47-6									
Xylene (total)	1330-20-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	740	42	340

Notes:  
Blank cells are intentional.  
Analytical results are reported to two significant figures.  
-- Not available or not established.  
1 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here.

Abbreviations:  
CAS = Chemical Abstracts Service  
cPAH = Carcinogenic polycyclic aromatic hydrocarbon  
µg/L = Micrograms per liter  
MTCA = Model Toxics Control Act  
TEQ = Toxic equivalent  
USEPA = U.S. Environmental Protection Agency

Qualifier:  
U Analyte is not detected at the associated reporting limit.



Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-32		SB-33		SB-34		SB-35		SB-36		SB-37	
Sample Name		WCD-SB32-22-26'	WCD-SB32-36-40'	WCD-SB33-22-26'	WCD-SB33-36-40'	WCD-SB34-26-30'	WCD-SB34-39-43'	WCD-SB35-26-30'	WCD-SB35-39-43'	WCD-SB36-26-30'	WCD-SB36-39-43'	WCD-SB37-26-30	WCD-SB37-35-39'
Sample Date		11/12/2012	11/12/2012	11/12/2012	11/12/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012
Analyte	CAS No.												
Semivolatile Organic Compounds													
1-Methylnaphthalene	90-12-0												
2-Methylnaphthalene	91-57-6												
Acenaphthene	83-32-9												
Acenaphthylene	208-96-8												
Anthracene	120-12-7												
Benzo(a)anthracene	56-55-3												
Benzo(a)pyrene	50-32-8												
Benzo(b)fluoranthene	205-99-2												
Benzo(g,h,i)perylene	191-24-2												
Benzo(k)fluoranthene	207-08-9												
Chrysene	218-01-9												
Dibenzo(a,h)anthracene	53-70-3												
Indeno(1,2,3-c,d)pyrene	193-39-5												
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)												
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)												
Fluoranthene	206-44-0												
Fluorene	86-73-7												
Hexachlorobutadiene	87-68-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Naphthalene	91-20-3	1,100	1,600	1,300	2,300	280	540	320	1,800	880	97	1.0 U	19
Pentachlorophenol	87-86-5												
Phenanthrene	85-01-8												
Pyrene	129-00-0												
Total Naphthalenes	--												
Volatile Organic Compounds													
1,1,1,2-Tetrachloroethane	630-20-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,1-Trichloroethane	71-55-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	79-34-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	79-00-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	75-34-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	75-35-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloropropene	563-58-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichlorobenzene	87-61-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,3-Trichloropropane	96-18-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trichlorobenzene	120-82-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2,4-Trimethylbenzene	95-63-6	25	100	10	45	7.9	61	5.4	67	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromo-3-chloropropane	96-12-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dibromoethane	106-93-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichlorobenzene	95-50-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	107-06-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,2-Dichloropropane	78-87-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3,5-Trimethylbenzene	108-67-8	9.0	40	2.0	11	2.0	18	1.8	23	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichlorobenzene	541-73-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,3-Dichloropropane	142-28-9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-32		SB-33		SB-34		SB-35		SB-36		SB-37	
Sample Name		WCD-SB32-22-26'	WCD-SB32-36-40'	WCD-SB33-22-26'	WCD-SB33-36-40'	WCD-SB34-26-30'	WCD-SB34-39-43'	WCD-SB35-26-30'	WCD-SB35-39-43'	WCD-SB36-26-30'	WCD-SB36-39-43'	WCD-SB37-26-30'	WCD-SB37-35-39'
Sample Date		11/12/2012	11/12/2012	11/12/2012	11/12/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012
Analyte	CAS No.												
Volatile Organic Compounds (cont.)													
1,4-Dichlorobenzene	106-46-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2,2-Dichloropropane	594-20-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Chloroethyl vinyl ether	110-75-8												
2-Chlorotoluene	95-49-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Hexanone	591-78-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
4-Chlorotoluene	106-43-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Acetone	67-64-1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzene	71-43-2	1.0 U	2.0	1.0 U	1.0 U	1.0 U	2.7	1.3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromobenzene	108-86-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromochloromethane	74-97-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromodichloromethane	75-27-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromoform	75-25-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Bromomethane	74-83-9	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	75-15-0												
Carbon tetrachloride	56-23-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	108-90-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroethane	75-00-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloroform	67-66-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	74-87-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,2-Dichloroethene	156-59-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	10061-01-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Cymene	99-87-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	124-48-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dibromomethane	74-95-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Dichlorodifluoromethane	75-71-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	100-41-4	60	180	8.0	36	23	160	10	98	1.0 U	1.0 U	1.0 U	1.0 U
Iodomethane	74-88-4												
Isopropylbenzene	98-82-8	4.0	20	1.0	6.0	1.4	13	1.1	13	1.0 U	1.0 U	1.0 U	1.0 U
Methyl ethyl ketone	78-93-3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Methyl isobutyl ketone	108-10-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methylene chloride	75-09-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Methyl-tert-butyl ether	1634-04-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Butylbenzene	104-51-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
n-Propylbenzene	103-65-1	1.0	7.0	1.0 U	3.0	1.0 U	3.5	1.0 U	5.3	1.0 U	1.0 U	1.0 U	1.0 U
sec-Butylbenzene	135-98-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Styrene	100-42-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	98-06-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	127-18-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	108-88-3	6.0	28	1.0 U	3.0	2.6	20	1.0	6.9	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,2-Dichloroethene	156-60-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	10061-02-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Trichloroethene	79-01-6	2.0	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.1	1.0 U	1.0 U	1.1
Trichlorofluoromethane	75-69-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-32		SB-33		SB-34		SB-35		SB-36		SB-37	
Sample Name		WCD-SB32-22-26'	WCD-SB32-36-40'	WCD-SB33-22-26'	WCD-SB33-36-40'	WCD-SB34-26-30'	WCD-SB34-39-43'	WCD-SB35-26-30'	WCD-SB35-39-43'	WCD-SB36-26-30'	WCD-SB36-39-43'	WCD-SB37-26-30	WCD-SB37-35-39'
Sample Date		11/12/2012	11/12/2012	11/12/2012	11/12/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012	11/19/2012
Analyte	CAS No.												
Volatile Organic Compounds (cont.)													
Vinyl acetate	108-05-4												
Vinyl chloride	75-01-4	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U	0.20 U
Xylene (meta & para)	108-38-3/106-42-3												
Xylene (ortho)	95-47-6												
Xylene (total)	1330-20-7	110	400	9.0	47	36	310	15	180	1.0 U	1.0 U	1.0 U	1.0 U

Notes:

- Blank cells are intentional.
- Analytical results are reported to two significant figures.
- Not available or not established.
- 1 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here.

Abbreviations:

- CAS = Chemical Abstracts Service
- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- µg/L = Micrograms per liter MTCA Model Toxics Control Act
- TEQ = Toxic equivalent
- USEPA = U.S. Environmental Protection Agency

Qualifier:

- U Analyte is not detected at the associated reporting limit.

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-38		SB-39		MW-15	MW-16	MW-17
Sample Name		WCD-SB38-26-30'	WCD-SB38-39-43'	WCD-SB39-26-30'	WCD-SB39-39-43'	MW-15-W-39-44FT	MW-16-W-39-44FT	MW-17-W-39-44FT
Sample Date		11/19/2012	11/19/2012	11/19/2012	11/19/2012	1/23/2019	1/23/2019	1/23/2019
Analyte	CAS No.							
Semivolatile Organic Compounds								
1-Methylnaphthalene	90-12-0					0.20	540	240
2-Methylnaphthalene	91-57-6					0.10 U	760	19
Acenaphthene	83-32-9					0.34	160	210
Acenaphthylene	208-96-8					0.10 U	19	6.8
Anthracene	120-12-7					0.10 U	5.9	5.8
Benzo(a)anthracene	56-55-3					0.10 U	0.10 U	0.099 U
Benzo(a)pyrene	50-32-8					0.10 U	0.10 U	0.099 U
Benzo(b)fluoranthene	205-99-2					0.10 U	0.10 U	0.099 U
Benzo(g,h,i)perylene	191-24-2					0.10 U	0.10 U	0.099 U
Benzo(k)fluoranthene	207-08-9					0.10 U	0.10 U	0.099 U
Chrysene	218-01-9					0.10 U	0.10 U	0.099 U
Dibenzo(a,h)anthracene	53-70-3					0.10 U	0.10 U	0.099 U
Indeno(1,2,3-c,d)pyrene	193-39-5					0.10 U	0.10 U	0.099 U
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)					0.10 U	0.10 U	0.099 U
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)					0.10 U	0.10 U	0.099 U
Fluoranthene	206-44-0					0.10 U	2.3	1.5
Fluorene	86-73-7					0.10 U	67	28
Hexachlorobutadiene	87-68-3	1.0 U	1.0 U	1.0 U	1.0 U			
Naphthalene	91-20-3	1.0 U	7.8	1.0 U	1.0 U	1.6 <sup>(1)</sup>	13,000 <sup>(1)</sup>	2,900 <sup>(1)</sup>
Pentachlorophenol	87-86-5					0.10 U	0.10 U	0.099 U
Phenanthrene	85-01-8					0.10 U	52	66
Pyrene	129-00-0					0.10 U	1.4	0.69
Total Naphthalenes	--					1.8	14,000	3,100
Volatile Organic Compounds								
1,1,1,2-Tetrachloroethane	630-20-6	1.0 U	1.0 U	1.0 U	1.0 U			
1,1,1-Trichloroethane	71-55-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	79-34-5	1.0 U	1.0 U	1.0 U	1.0 U			
1,1,2-Trichloroethane	79-00-5	1.0 U	1.0 U	1.0 U	1.0 U			
1,1-Dichloroethane	75-34-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	75-35-4	1.0 U	1.0 U	1.0 U	1.0 U			
1,1-Dichloropropene	563-58-6	1.0 U	1.0 U	1.0 U	1.0 U			
1,2,3-Trichlorobenzene	87-61-6	1.0 U	1.0 U	1.0 U	1.0 U			
1,2,3-Trichloropropane	96-18-4	1.0 U	1.0 U	1.0 U	1.0 U			
1,2,4-Trichlorobenzene	120-82-1	1.0 U	1.0 U	1.0 U	1.0 U			
1,2,4-Trimethylbenzene	95-63-6	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	290	40
1,2-Dibromo-3-chloropropane	96-12-8	1.0 U	1.0 U	1.0 U	1.0 U			
1,2-Dibromoethane	106-93-4	1.0 U	1.0 U	1.0 U	1.0 U			
1,2-Dichlorobenzene	95-50-1	1.0 U	1.0 U	1.0 U	1.0 U			
1,2-Dichloroethane	107-06-2	1.0 U	1.0 U	1.0 U	1.0 U			
1,2-Dichloropropane	78-87-5	1.0 U	1.0 U	1.0 U	1.0 U			
1,3,5-Trimethylbenzene	108-67-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	100	1.0 U
1,3-Dichlorobenzene	541-73-1	1.0 U	1.0 U	1.0 U	1.0 U			
1,3-Dichloropropane	142-28-9	1.0 U	1.0 U	1.0 U	1.0 U			

Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-38		SB-39		MW-15	MW-16	MW-17
Sample Name		WCD-SB38-26-30'	WCD-SB38-39-43'	WCD-SB39-26-30'	WCD-SB39-39-43'	MW-15-W-39-44FT	MW-16-W-39-44FT	MW-17-W-39-44FT
Sample Date		11/19/2012	11/19/2012	11/19/2012	11/19/2012	1/23/2019	1/23/2019	1/23/2019
Analyte	CAS No.							
Volatile Organic Compounds (cont.)								
1,4-Dichlorobenzene	106-46-7	1.0 U	1.0 U	1.0 U	1.0 U			
2,2-Dichloropropane	594-20-7	1.0 U	1.0 U	1.0 U	1.0 U			
2-Chloroethyl vinyl ether	110-75-8							
2-Chlorotoluene	95-49-8	1.0 U	1.0 U	1.0 U	1.0 U			
2-Hexanone	591-78-6	1.0 U	1.0 U	1.0 U	1.0 U			
4-Chlorotoluene	106-43-4	1.0 U	1.0 U	1.0 U	1.0 U			
Acetone	67-64-1	10 U	10 U	10 U	10 U			
Benzene	71-43-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	21	2.8
Bromobenzene	108-86-1	1.0 U	1.0 U	1.0 U	1.0 U			
Bromochloromethane	74-97-5	1.0 U	1.0 U	1.0 U	1.0 U			
Bromodichloromethane	75-27-4	1.0 U	1.0 U	1.0 U	1.0 U			
Bromoform	75-25-2	1.0 U	1.0 U	1.0 U	1.0 U			
Bromomethane	74-83-9	1.0 U	1.0 U	1.0 U	1.0 U			
Carbon disulfide	75-15-0							
Carbon tetrachloride	56-23-5	1.0 U	1.0 U	1.0 U	1.0 U			
Chlorobenzene	108-90-7	1.0 U	1.0 U	1.0 U	1.0 U			
Chloroethane	75-00-3	1.0 U	1.0 U	1.0 U	1.0 U			
Chloroform	67-66-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Chloromethane	74-87-3	1.0 U	1.0 U	1.0 U	1.0 U	2.0 U	2.0 U	2.0 U
cis-1,2-Dichloroethene	156-59-2	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	10061-01-5	1.0 U	1.0 U	1.0 U	1.0 U			
Cymene	99-87-6	1.0 U	1.0 U	1.0 U	1.0 U			
Dibromochloromethane	124-48-1	1.0 U	1.0 U	1.0 U	1.0 U			
Dibromomethane	74-95-3	1.0 U	1.0 U	1.0 U	1.0 U			
Dichlorodifluoromethane	75-71-8	1.0 U	1.0 U	1.0 U	1.0 U			
Ethylbenzene	100-41-4	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1,100	100
Iodomethane	74-88-4							
Isopropylbenzene	98-82-8	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	41	18
Methyl ethyl ketone	78-93-3	10 U	10 U	10 U	10 U			
Methyl isobutyl ketone	108-10-1	1.0 U	1.0 U	1.0 U	1.0 U	1.3 U	1.3 U	1.3 U
Methylene chloride	75-09-2	1.0 U	1.0 U	1.0 U	1.0 U			
Methyl-tert-butyl ether	1634-04-4	1.0 U	1.0 U	1.0 U	1.0 U			
n-Butylbenzene	104-51-8	1.0 U	1.0 U	1.0 U	1.0 U			
n-Propylbenzene	103-65-1	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	20	1.0 U
sec-Butylbenzene	135-98-8	1.0 U	1.0 U	1.0 U	1.0 U			
Styrene	100-42-5	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
tert-Butylbenzene	98-06-6	1.0 U	1.0 U	1.0 U	1.0 U			
Tetrachloroethene	127-18-4	1.0 U	1.0 U	1.0 U	1.0 U			
Toluene	108-88-3	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	330	20
trans-1,2-Dichloroethene	156-60-5	1.0 U	1.0 U	1.0 U	1.0 U			
trans-1,3-Dichloropropene	10061-02-6	1.0 U	1.0 U	1.0 U	1.0 U			
Trichloroethene	79-01-6	1.0 U	1.0 U	1.0 U	1.0 U	0.50 U	0.50 U	0.50 U
Trichlorofluoromethane	75-69-4	1.0 U	1.0 U	1.0 U	1.0 U			



Table 5.2  
Reconnaissance Groundwater Analytical Data (µg/L)

Location Name		SB-38		SB-39		MW-15	MW-16	MW-17
Sample Name		WCD-SB38-26-30'	WCD-SB38-39-43'	WCD-SB39-26-30'	WCD-SB39-39-43'	MW-15-W-39-44FT	MW-16-W-39-44FT	MW-17-W-39-44FT
Sample Date		11/19/2012	11/19/2012	11/19/2012	11/19/2012	1/23/2019	1/23/2019	1/23/2019
Analyte	CAS No.							
Volatile Organic Compounds (cont.)								
Vinyl acetate	108-05-4							
Vinyl chloride	75-01-4	0.20 U	0.20 U	0.20 U	0.20 U			
Xylene (meta & para)	108-38-3/106-42-3					1.0 U	1,100	54
Xylene (ortho)	95-47-6					1.0 U	600	68
Xylene (total)	1330-20-7	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1,700	120

Notes:

- Blank cells are intentional.
- Analytical results are reported to two significant figures.
- Not available or not established.
- 1 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here.

Abbreviations:

- CAS = Chemical Abstracts Service
- cPAH = Carcinogenic polycyclic aromatic hydrocarbon
- µg/L = Micrograms per liter MTCA Model Toxics Control Act
- TEQ = Toxic equivalent
- USEPA = U.S. Environmental Protection Agency

Qualifier:

- U Analyte is not detected at the associated reporting limit.

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			B-01		B-02	B-03	B-04	B-05	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06
Sample Name			B01-6.5	B01-16.5	B02-6.0	B03-5.5	B04-9.5	B05-9.0	SP01-7-8	SP02-1-2	SP03-3-4	SP04-3-4	SP05-3-4	SP06-3-4
Sample Date			4/30/1992	4/30/1992	5/4/1992	5/4/1992	5/5/1992	5/5/1992	7/20/2006	7/20/2006	7/20/2006	7/20/2006	9/12/2006	9/12/2006
Sample Depth (feet)			6.5–6.5	16.5–16.5	6.0–6.0	5.5–5.5	9.5–9.5	9.0–9.0	7.0–8.0	1.0–2.0	3.0–4.0	3.0–4.0	3.0–4.0	3.0–4.0
Analyte	CAS No.	Screening Level <sup>(1)</sup>												
Metals														
Antimony	7440-36-0	32												
Arsenic	7440-38-2	20												
Beryllium	7440-41-7	160												
Cadmium	7440-43-9	2.0												
Chromium	7440-47-3	2,000												
Copper	7440-50-8	3,200												
Lead	7439-92-1	250												
Mercury	7439-97-6	2.0												
Nickel	7440-02-0	1,600												
Selenium	7782-49-2	400												
Silver	7440-22-4	400												
Thallium	7440-28-0	0.80												
Zinc	7440-66-6	24,000												
Total Petroleum Hydrocarbons														
Diesel-range organics	DRO	--	25 U	25 U										
Gasoline-range organics	GRO	--	7.0	5.0 U										
Semivolatile Organic Compounds														
1-Methylnaphthalene	90-12-0	--												
2,4,5-Trichlorophenol	95-95-4	8,000					0.013 U	0.011 U						
2,4,6-Trichlorophenol	88-06-2	80					0.0076 U	0.0066 U						
2,4-Dichlorophenol	120-83-2	240					0.038 U	0.033 U						
2,4-Dimethylphenol	105-67-9	1,600												
2,4-Dinitrophenol	51-28-5	160												
2-Chlorophenol	95-57-8	400					1.9 U	1.6 U						
2-Methylnaphthalene	91-57-6	--												
2-Methylphenol	95-48-7	4,000												
2-Nitrophenol	88-75-5	--												
4,6-Dinitro-o-cresol	534-52-1	6.4												
4-Chloro-3-methylphenol	59-50-7	8,000												
4-Methylphenol	106-44-5	8,000												
4-Nitrophenol	100-02-7	--												
Acenaphthene	83-32-9	4,800			0.20 U	0.20 U			9.9	2.5 U	2.5 U	31	0.0050 U	0.42
Acenaphthylene	208-96-8	--			0.20 U	0.20 U			3.9	2.5 U	2.4	5.0 U	0.0055	3.3
Anthracene	120-12-7	24,000			0.29	0.23			28	2.5 U	170	150	0.0076	5.5
Benzo(a)anthracene	56-55-3	--			0.88	0.51			33	15	52	55	0.023	6.5
Benzo(a)pyrene	50-32-8	0.10			1.5	0.81			45	24	93	50	0.038	5.9
Benzo(b)fluoranthene	205-99-2	--			0.71	0.41			67	47	87	62	0.066	5.4
Benzo(k)fluoranthene	207-08-9	--			0.37	0.22			18	15	34	24	0.019	1.6
Chrysene	218-01-9	--			1	0.6			45	25	240	99	0.037	6.8
Dibenzo(a,h)anthracene	53-70-3	--			0.68	0.040 U			7.0	5.8	18	6.9	0.0061	0.89
Indeno(1,2,3-c,d)pyrene	193-39-5	--			0.81	0.41			25	17	49	20	0.019	2.5
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10			1.9	0.97			60	34	120	68	0.052	7.7
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10			1.9	0.97			60	34	120	68	0.052	7.7
Benzo(g,h,i)perylene	191-24-2	--			0.96	0.46			28	21	50	20	0.020	2.9
Fluoranthene	206-44-0	3,200			3	1.9			76	11	50	180	0.028	11

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			B-01		B-02	B-03	B-04	B-05	SP-01	SP-02	SP-03	SP-04	SP-05	SP-06
Sample Name			B01-6.5	B01-16.5	B02-6.0	B03-5.5	B04-9.5	B05-9.0	SP01-7-8	SP02-1-2	SP03-3-4	SP04-3-4	SP05-3-4	SP06-3-4
Sample Date			4/30/1992	4/30/1992	5/4/1992	5/4/1992	5/5/1992	5/5/1992	7/20/2006	7/20/2006	7/20/2006	7/20/2006	9/12/2006	9/12/2006
Sample Depth (feet)			6.5–6.5	16.5–16.5	6.0–6.0	5.5–5.5	9.5–9.5	9.0–9.0	7.0–8.0	1.0–2.0	3.0–4.0	3.0–4.0	3.0–4.0	3.0–4.0
Analyte	CAS No.	Screening Level <sup>(1)</sup>												
Semivolatile Organic Compounds (cont.)														
Fluorene	86-73-7	3,200			0.20	0.12			4.7	2.5 U	3.4	29	0.0050 U	3.5
Naphthalene	91-20-3	5.0 <sup>(2)</sup>			0.27 <sup>(2)</sup>	0.098 U <sup>(2)</sup>			5.9 <sup>(2)</sup>	29 <sup>(2)</sup>	2.6 <sup>(2)</sup>	5.0 U <sup>(2)</sup>	0.0050 U <sup>(2)</sup>	0.25 U <sup>(2)</sup>
Pentachlorophenol	87-86-5	2.5					0.0025 U	0.0022 U	25 UJ	25 UJ	40 UJ	70 UJ		
Phenanthrene	85-01-8	--			2.1	1.4			27	3.6	9.8	86	0.013	16
Phenol	108-95-2	24,000												
Pyrene	129-00-0	2,400			3.6	0.13			87	14	60	150	0.089	16
Tetrachlorophenols (total)	25167-83-3	--					0.0076 U	0.0066 U						
Total Naphthalenes	--	5.0												
Volatile Organic Compounds														
1,1,1-Trichloroethane	71-55-6	2												
1,1-Dichloroethane	75-34-3	180												
1,2,4-Trimethylbenzene	95-63-6	1.3												
1,2-Dichlorobenzene	95-50-1	--	0.029 U	0.026 U										
1,3,5-Trimethylbenzene	108-67-8	1.3												
1,3-Dichlorobenzene	541-73-1	--	0.029 U	0.026 U										
1,4-Dichlorobenzene	106-46-7	--	0.029 U	0.026 U										
Benzene	71-43-2	0.030	0.029 U	0.026 U										
Chlorobenzene	108-90-7	--	0.029 U	0.026 U										
Chloroform	67-66-3	32												
Chloromethane	74-87-3	--												
cis-1,2-Dichloroethene	156-59-2	160												
Ethylbenzene	100-41-4	6.0	0.029 U	0.026 U										
Isopropylbenzene	98-82-8	8,000												
Methyl isobutyl ketone	108-10-1	6,400												
n-Propylbenzene	103-65-1	8,000												
Styrene	100-42-5	16,000												
Toluene	108-88-3	7.0	0.029 U	0.026 U										
Trichloroethene	79-01-6	0.030												
Xylene (meta & para)	108-38-3/106-42-3	--												
Xylene (ortho)	95-47-6	--												
Xylene (total)	1330-20-7	9.0	0.029 U	0.026 U										

Notes:

Blank cells are intentional.

All criteria and results are rounded to two significant figures.

-- Not available or not established.

**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

1 Soil screening levels for all compounds designated as chemicals of interest are presented in Table 5.5. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.

2 Where naphthalene was run by USEPA 8260 only, or methylnaphthalenes were not run by USEPA 8270, the naphthalene result is compared to the screening level for total naphthalenes.

3 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level.

Abbreviations:

CAS = Chemical Abstracts Service

cPAH = Carcinogenic polycyclic aromatic hydrocarbon

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act TEQ Toxic equivalent

USEPA = U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected and the concentration is estimated.

JB Concentration is estimated due to presence of blank contamination.

U Analyte is not detected at the associated reporting limit.

UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			SP-07	SP-08	SP-09	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	MW-07		MW-08	
Sample Name			SP07-7-8	SP08-3-4	SP09-7-8	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	MW7-17.5-19	MW7-25-26.5	MW8-15-16.5	MW8-25-26.5
Sample Date			9/12/2006	9/12/2006	9/12/2006	9/21/2006	9/21/2006	9/21/2006	9/21/2006	9/21/2006	9/21/2006	1/26/2007	1/26/2007	1/31/2007	1/31/2007
Sample Depth (feet)			7.0–8.0	3.0–4.0	7.0–8.0	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0	17.5–19.0	25.0–26.5	15.0–16.5	25.0–26.5
Analyte	CAS No.	Screening Level <sup>(1)</sup>													
Metals															
Antimony	7440-36-0	32													
Arsenic	7440-38-2	20													
Beryllium	7440-41-7	160													
Cadmium	7440-43-9	2.0													
Chromium	7440-47-3	2,000				9.2	370	9.3	8.5	8.0	18				
Copper	7440-50-8	3,200													
Lead	7439-92-1	250				68	22	11	11	26	190				
Mercury	7439-97-6	2.0													
Nickel	7440-02-0	1,600													
Selenium	7782-49-2	400													
Silver	7440-22-4	400													
Thallium	7440-28-0	0.80													
Zinc	7440-66-6	24,000													
Total Petroleum Hydrocarbons															
Diesel	DRO	--													
Gasoline	GRO	--													
Semivolatile Organic Compounds															
1-Methylnaphthalene	90-12-0	--										1.5	70	0.0069 U	0.0069 U
2,4,5-Trichlorophenol	95-95-4	8,000													
2,4,6-Trichlorophenol	88-06-2	80													
2,4-Dichlorophenol	120-83-2	240													
2,4-Dimethylphenol	105-67-9	1,600													
2,4-Dinitrophenol	51-28-5	160													
2-Chlorophenol	95-57-8	400													
2-Methylnaphthalene	91-57-6	--										2.8	130	0.0069 U	0.0069 U
2-Methylphenol	95-48-7	4,000													
2-Nitrophenol	88-75-5	--													
4,6-Dinitro-o-cresol	534-52-1	6.4													
4-Chloro-3-methylphenol	59-50-7	8,000													
4-Methylphenol	106-44-5	8,000													
4-Nitrophenol	100-02-7	--													
Acenaphthene	83-32-9	4,800	0.25 U	0.25 U	0.0050 U							3.9	49	0.0085	0.0069 U
Acenaphthylene	208-96-8	--	0.26	0.52	0.0050 U							0.12	2.7	0.061	0.0069 U
Anthracene	120-12-7	24,000	0.52	1.0	0.0050 U							1.5	16	0.098	0.0069 U
Benzo(a)anthracene	56-55-3	--	2.1	1.4	0.0050 U							1.4	6.7	0.33	0.0069 U
Benzo(a)pyrene	50-32-8	0.10	6.4	2.3	0.0050 U							0.66	3.8	0.29	0.0069 U
Benzo(b)fluoranthene	205-99-2	--	9.6	3.0	0.0050 U							0.92	4.9	0.83	0.011
Benzo(k)fluoranthene	207-08-9	--	2.3	0.87	0.0050 U							0.34	2.0	0.26	0.0069 U
Chrysene	218-01-9	--	5.2	2.4	0.0050 U							1.1	7.1	0.47	0.0069 U
Dibenzo(a,h)anthracene	53-70-3	--	1.1	0.67	0.0050 U							0.092	0.54	0.13	0.0069 U
Indeno(1,2,3-c,d)pyrene	193-39-5	--	2.9	2.4	0.0050 U							0.25	1.4	0.37	0.0069 U
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	8.3	3.2	0.0050 U							0.97	5.4	0.49	0.0060
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	8.3	3.2	0.0050 U							0.97	5.4	0.49	0.0011
Benzo(g,h,i)perylene	191-24-2	--	3.1	3.1	0.0050 U							0.27	1.5	0.39	0.0069 U
Fluoranthene	206-44-0	3,200	3.3	2.1	0.0050 U							6.1	35	0.42	0.0069 U

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			SP-07	SP-08	SP-09	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	MW-07		MW-08	
Sample Name			SP07-7-8	SP08-3-4	SP09-7-8	SS-01	SS-02	SS-03	SS-04	SS-05	SS-06	MW7-17.5-19	MW7-25-26.5	MW8-15-16.5	MW8-25-26.5
Sample Date			9/12/2006	9/12/2006	9/12/2006	9/21/2006	9/21/2006	9/21/2006	9/21/2006	9/21/2006	9/21/2006	1/26/2007	1/26/2007	1/31/2007	1/31/2007
Sample Depth (feet)			7.0–8.0	3.0–4.0	7.0–8.0	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0	0.5–1.0	17.5–19.0	25.0–26.5	15.0–16.5	25.0–26.5
Analyte	CAS No.	Screening Level <sup>(1)</sup>													
Semivolatile Organic Compounds (cont.)															
Fluorene	86-73-7	3,200	0.25 U	0.25 U	0.0050 U							4.0	39	0.012	0.0069 U
Naphthalene	91-20-3	5.0 <sup>(2)</sup>	0.25 U <sup>(2)</sup>	0.25 U <sup>(2)</sup>	0.0050 U <sup>(2)</sup>							2.0	150	0.0081	0.0069 U
Pentachlorophenol	87-86-5	2.5													
Phenanthrene	85-01-8	--	0.25 U	1.5	0.0050 U							11	90	0.15	0.0069 U
Phenol	108-95-2	24,000													
Pyrene	129-00-0	2,400	5.9	3.0	0.0050 U							4.8	32	0.42	0.0069 U
Tetrachlorophenols (total)	25167-83-3	--													
Total Naphthalenes	--	5.0										6.3	350	0.0081	0.0069 U
Volatile Organic Compounds															
1,1,1-Trichloroethane	71-55-6	2													
1,1-Dichloroethane	75-34-3	180													
1,2,4-Trimethylbenzene	95-63-6	1.3													
1,2-Dichlorobenzene	95-50-1	--													
1,3,5-Trimethylbenzene	108-67-8	1.3													
1,3-Dichlorobenzene	541-73-1	--													
1,4-Dichlorobenzene	106-46-7	--													
Benzene	71-43-2	0.030													
Chlorobenzene	108-90-7	--													
Chloroform	67-66-3	32													
Chloromethane	74-87-3	--													
cis-1,2-Dichloroethene	156-59-2	160													
Ethylbenzene	100-41-4	6.0													
Isopropylbenzene	98-82-8	8,000													
Methyl isobutyl ketone	108-10-1	6,400													
n-Propylbenzene	103-65-1	8,000													
Styrene	100-42-5	16,000													
Toluene	108-88-3	7.0													
Trichloroethene	79-01-6	0.030													
Xylene (meta & para)	108-38-3/106-42-3	--													
Xylene (ortho)	95-47-6	--													
Xylene (total)	1330-20-7	9.0													

Notes:

Blank cells are intentional.

All criteria and results are rounded to two significant figures.

-- Not available or not established.

**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

1 Soil screening levels for all compounds designated as chemicals of interest are presented in Table 5.5. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.

2 Where naphthalene was run by USEPA 8260 only, or methylnaphthalenes were not run by USEPA 8270, the naphthalene result is compared to the screening level for total naphthalenes.

3 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level.

Abbreviations:

CAS = Chemical Abstracts Service

cPAH = Carcinogenic polycyclic aromatic hydrocarbon

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act TEQ Toxic equivalent

USEPA = U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected and the concentration is estimated.

JB Concentration is estimated due to presence of blank contamination.

U Analyte is not detected at the associated reporting limit.

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Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			MW-09				SB-01		SB-02		SB-03		SB-04		SB-05	
Sample Name			MW9-24-25	MW9-45-47	MW9-55.5-57.5	MW9-68-70	SB1-9-10	SB1-19-20.5	SB2-14-15.5	SB2-19-20.5	SB3-10-11.5	SB3-15-16.5	SB4-10-11.5	SB4-20-21.5	SB5-15-16.5	SB5-35-35-36.5
Sample Date			9/6/2007	9/6/2007	9/6/2007	9/6/2007	1/29/2007	1/29/2007	1/29/2007	1/29/2007	1/31/2007	1/31/2007	5/11/2007	5/11/2007	5/11/2007	5/11/2007
Sample Depth (feet)			24.0–25.0	45.0–47.0	55.5–57.5	68.0–70.0	9.0–10.0	19.0–20.5	14.0–15.5	19.0–20.5	10.0–11.5	15.0–16.5	10.0–11.5	20.0–21.5	15.0–16.5	35.0–36.5
Analyte	CAS No.	Screening Level <sup>(1)</sup>														
Metals																
Antimony	7440-36-0	32														
Arsenic	7440-38-2	20														
Beryllium	7440-41-7	160														
Cadmium	7440-43-9	2.0														
Chromium	7440-47-3	2,000														
Copper	7440-50-8	3,200														
Lead	7439-92-1	250														
Mercury	7439-97-6	2.0														
Nickel	7440-02-0	1,600														
Selenium	7782-49-2	400														
Silver	7440-22-4	400														
Thallium	7440-28-0	0.80														
Zinc	7440-66-6	24,000														
Total Petroleum Hydrocarbons																
Diesel	DRO	--														
Gasoline	GRO	--														
Semivolatile Organic Compounds																
1-Methylnaphthalene	90-12-0	--	0.55	0.16	0.0072 U	0.0085 U	0.0072 U	0.0072 U	0.0074 U	0.0077 U	0.47	0.066	0.0081 U	0.0077 U	0.0072 U	0.19
2,4,5-Trichlorophenol	95-95-4	8,000														
2,4,6-Trichlorophenol	88-06-2	80														
2,4-Dichlorophenol	120-83-2	240														
2,4-Dimethylphenol	105-67-9	1,600														
2,4-Dinitrophenol	51-28-5	160														
2-Chlorophenol	95-57-8	400														
2-Methylnaphthalene	91-57-6	--	0.031	0.16	0.0072 U	0.0085 U	0.0072 U	0.0072 U	0.0074 U	0.0077 U	0.54	0.070	0.0081 U	0.0077 U	0.0072 U	0.16
2-Methylphenol	95-48-7	4,000														
2-Nitrophenol	88-75-5	--														
4,6-Dinitro-o-cresol	534-52-1	6.4														
4-Chloro-3-methylphenol	59-50-7	8,000														
4-Methylphenol	106-44-5	8,000														
4-Nitrophenol	100-02-7	--														
Acenaphthene	83-32-9	4,800	3.9	0.029	0.0072 U	0.0085 U	0.0072 U	0.011	0.0074 U	0.0077 U	0.75	0.078	0.0081 U	0.0077 U	0.0072 U	0.23
Acenaphthylene	208-96-8	--	0.093	0.0093 U	0.0072 U	0.0085 U	0.0099	0.0084	0.011	0.0077 U	0.52	0.10	0.011	0.0077 U	0.0072 U	0.0084
Anthracene	120-12-7	24,000	7.0	0.0093 U	0.0072 U	0.0085 U	0.0087	0.027	0.0074 U	0.0077 U	3.3	0.30	0.015	0.0077 U	0.0072 U	0.066
Benzo(a)anthracene	56-55-3	--	2.1	0.0093 U	0.0072 U	0.0085 U	0.025	0.050	0.0074 U	0.0077 U	5.3	0.49	0.012	0.0077 U	0.0072 U	0.0083 U
Benzo(a)pyrene	50-32-8	0.10	0.83	0.0093 U	0.0072 U	0.0085 U	0.030	0.053	0.0074 U	0.0077 U	5.4	0.49	0.11	0.017	0.0072 U	0.0083 U
Benzo(b)fluoranthene	205-99-2	--	1.1	0.0093 U	0.0072 U	0.0085 U	0.030	0.051	0.0074 U	0.0077 U	6.3	0.55	0.093	0.016	0.0072 U	0.0083 U
Benzo(k)fluoranthene	207-08-9	--	0.46	0.0093 U	0.0072 U	0.0085 U	0.0099	0.017	0.0074 U	0.0077 U	2.1	0.22	0.054	0.0099	0.0072 U	0.0083 U
Chrysene	218-01-9	--	2.5	0.0093 U	0.0072 U	0.0085 U	0.030	0.060	0.0074 U	0.0077 U	6.5	0.59	0.068	0.010	0.0072 U	0.0083 U
Dibenzo(a,h)anthracene	53-70-3	--	0.15	0.0093 U	0.0072 U	0.0085 U	0.0072 U	0.0082	0.0074 U	0.0077 U	0.85	0.086	0.036	0.0077 U	0.0072 U	0.0083 U
Indeno(1,2,3-c,d)pyrene	193-39-5	--	0.33	0.0093 U	0.0072 U	0.0085 U	0.016	0.024	0.0074 U	0.0077 U	2.8	0.26	0.12	0.017	0.0072 U	0.0083 U
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	1.3	0.0093 U	0.0072 U	0.0085 U	0.039	0.069	0.0074 U	0.0077 U	7.2	0.66	0.14	0.022	0.0072 U	0.0083 U
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	1.3	0.0093 U	0.0072 U	0.0085 U	0.038	0.069	0.0074 U	0.0077 U	7.2	0.66	0.14	0.021	0.0072 U	0.0083 U
Benzo(g,h,i)perylene	191-24-2	--	0.32	0.0093 U	0.0072 U	0.0085 U	0.021	0.031	0.0074 U	0.0077 U	3.4	0.30	0.15	0.021	0.0072 U	0.0083 U
Fluoranthene	206-44-0	3,200	9.5	0.0093 U	0.011	0.0085 U	0.038	0.084	0.0074 U	0.0077 U	10	0.98	0.0081 U	0.0077 U	0.0072 U	0.12



Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			MW-09				SB-01		SB-02		SB-03		SB-04		SB-05	
Sample Name			MW9-24-25	MW9-45-47	MW9-55.5-57.5	MW9-68-70	SB1-9-10	SB1-19-20.5	SB2-14-15.5	SB2-19-20.5	SB3-10-11.5	SB3-15-16.5	SB4-10-11.5	SB4-20-21.5	SB5-15-16.5	SB5-35-35-36.5
Sample Date			9/6/2007	9/6/2007	9/6/2007	9/6/2007	1/29/2007	1/29/2007	1/29/2007	1/29/2007	1/31/2007	1/31/2007	5/11/2007	5/11/2007	5/11/2007	5/11/2007
Sample Depth (feet)			24.0–25.0	45.0–47.0	55.5–57.5	68.0–70.0	9.0–10.0	19.0–20.5	14.0–15.5	19.0–20.5	10.0–11.5	15.0–16.5	10.0–11.5	20.0–21.5	15.0–16.5	35.0–36.5
Analyte	CAS No.	Screening Level <sup>(1)</sup>														
Semivolatile Organic Compounds (cont.)																
Fluorene	86-73-7	3,200	2.9	0.0093 U	0.0072 U	0.0085 U	0.0072 U	0.0085	0.0074 U	0.0077 U	1.2	0.16	0.0081 U	0.0077 U	0.0072 U	0.19
Naphthalene	91-20-3	5.0 <sup>(2)</sup>	0.064	3.8	0.0072 U	0.0085 U	0.0072 U	0.0072 U	0.0074 U	0.0077 U	0.55	0.041	0.0081 U	0.0077 U	0.0072 U	1.4
Pentachlorophenol	87-86-5	2.5														
Phenanthrene	85-01-8	--	23	0.0093 U	0.025	0.0085 U	0.024	0.097	0.0074 U	0.0077 U	11	1.0	0.0081 U	0.0077 U	0.0072 U	0.54
Phenol	108-95-2	24,000														
Pyrene	129-00-0	2,400	7.6	0.0093 U	0.0097	0.0085 U	0.059	0.15	0.0074 U	0.0077 U	15	1.3	0.0099	0.0077 U	0.0072 U	0.080
Tetrachlorophenols (total)	25167-83-3	--														
Total Naphthalenes	--	5.0	0.64	4.1	0.0072 U	0.0085 U	0.0072 U	0.0072 U	0.0074 U	0.0077 U	1.6	0.18	0.0081 U	0.0077 U	0.0072 U	1.8
Volatile Organic Compounds																
1,1,1-Trichloroethane	71-55-6	2														
1,1-Dichloroethane	75-34-3	180														
1,2,4-Trimethylbenzene	95-63-6	1.3														
1,2-Dichlorobenzene	95-50-1	--														
1,3,5-Trimethylbenzene	108-67-8	1.3														
1,3-Dichlorobenzene	541-73-1	--														
1,4-Dichlorobenzene	106-46-7	--														
Benzene	71-43-2	0.030														
Chlorobenzene	108-90-7	--														
Chloroform	67-66-3	32														
Chloromethane	74-87-3	--														
cis-1,2-Dichloroethene	156-59-2	160														
Ethylbenzene	100-41-4	6.0														
Isopropylbenzene	98-82-8	8,000														
Methyl isobutyl ketone	108-10-1	6,400														
n-Propylbenzene	103-65-1	8,000														
Styrene	100-42-5	16,000														
Toluene	108-88-3	7.0														
Trichloroethene	79-01-6	0.030														
Xylene (meta & para)	108-38-3/106-42-3	--														
Xylene (ortho)	95-47-6	--														
Xylene (total)	1330-20-7	9.0														

Notes:

Blank cells are intentional.

All criteria and results are rounded to two significant figures.

-- Not available or not established.

**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

1 Soil screening levels for all compounds designated as chemicals of interest are presented in Table 5.5. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.

2 Where naphthalene was run by USEPA 8260 only, or methylnaphthalenes were not run by USEPA 8270, the naphthalene result is compared to the screening level for total naphthalenes.

3 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level.

Abbreviations:

CAS = Chemical Abstracts Service

cPAH = Carcinogenic polycyclic aromatic hydrocarbon

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act TEQ Toxic equivalent

USEPA = U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected and the concentration is estimated.

JB Concentration is estimated due to presence of blank contamination.

U Analyte is not detected at the associated reporting limit.

UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			SP2-B				SS-2B	SB-40			SB-41				SB-42	
Sample Name			SP2-B-15.0	SP2-B-30.0	SP2-B-35.0	SP2-B-45.0	SS-2B	SB-40-29.5-30	SB-40-31.5-32	SB-40-39-39.5	SB-41-24-25	SB-41-25.5-26	SB-41-28.5-29	SB-41-49-50	SB-42-25.5-26	SB-42-29-30
Sample Date			6/11/2010	6/11/2010	6/11/2010	6/11/2010	6/22/2010	10/1/2018	10/1/2018	10/1/2018	10/2/2018	10/2/2018	10/2/2018	10/2/2018	10/3/2018	10/3/2018
Sample Depth (feet)			15.0–15.0	30.0–30.0	35.0–35.0	45.0–45.0	1.0–1.0	29.5–30.0	31.5–32.0	39.0–39.5	24.0–25.0	25.5–26.0	28.5–29.0	49.0–50.0	25.5–26.0	29.0–30.0
Analyte	CAS No.	Screening Level <sup>(1)</sup>														
Metals																
Antimony	7440-36-0	32														
Arsenic	7440-38-2	20														
Beryllium	7440-41-7	160														
Cadmium	7440-43-9	2.0														
Chromium	7440-47-3	2,000					7.02									
Copper	7440-50-8	3,200														
Lead	7439-92-1	250														
Mercury	7439-97-6	2.0														
Nickel	7440-02-0	1,600														
Selenium	7782-49-2	400														
Silver	7440-22-4	400														
Thallium	7440-28-0	0.80														
Zinc	7440-66-6	24,000														
Total Petroleum Hydrocarbons																
Diesel	DRO	--														
Gasoline	GRO	--														
Semivolatile Organic Compounds																
1-Methylnaphthalene	90-12-0	--														
2,4,5-Trichlorophenol	95-95-4	8,000														
2,4,6-Trichlorophenol	88-06-2	80														
2,4-Dichlorophenol	120-83-2	240														
2,4-Dimethylphenol	105-67-9	1,600														
2,4-Dinitrophenol	51-28-5	160														
2-Chlorophenol	95-57-8	400														
2-Methylnaphthalene	91-57-6	--														
2-Methylphenol	95-48-7	4,000														
2-Nitrophenol	88-75-5	--														
4,6-Dinitro-o-cresol	534-52-1	6.4														
4-Chloro-3-methylphenol	59-50-7	8,000														
4-Methylphenol	106-44-5	8,000														
4-Nitrophenol	100-02-7	--														
Acenaphthene	83-32-9	4,800	0.20 U	69	37	0.092										
Acenaphthylene	208-96-8	--	0.63	4.2	2.0 U	0.010 U										
Anthracene	120-12-7	24,000	1.3	28	15	0.031										
Benzo(a)anthracene	56-55-3	--	1.2	13	7.7	0.015		2.1	3.0	0.045 U	14	10	0.15	0.046 U	11	0.046 U
Benzo(a)pyrene	50-32-8	0.10	26	6.3	3.9	0.010 U		0.99	1.7	0.045 U	5.8	4.7	0.045 U	0.046 U	5.3	0.046 U
Benzo(b)fluoranthene	205-99-2	--	31	8.2	5.3	0.010 U		0.78	1.5	0.045 U	4.7	4.4	0.045 U	0.046 U	4.6	0.046 U
Benzo(k)fluoranthene	207-08-9	--	5.6	4.0 U	2.0 U	0.010 U		0.86	1.4	0.045 U	4.7	3.7	0.045 U	0.046 U	4.2	0.046 U
Chrysene	218-01-9	--	15	13	8.2	0.015		2.1	3.1	0.045 U	12	9.1	0.11	0.046 U	11	0.046 U
Dibenzo(a,h)anthracene	53-70-3	--	4.7	4.0 U	2.0 U	0.010 U		0.14	0.27	0.045 U	1.1	0.64	0.045 U	0.046 U	0.88	0.046 U
Indeno(1,2,3-c,d)pyrene	193-39-5	--	14	4.0 U	2.0 U	0.010 U		0.29	0.50	0.045 U	2.0	1.2	0.045 U	0.046 U	1.6	0.046 U
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	32	9.2	5.6	0.0086		1.4	2.4	0.045 U	8.6	6.8	0.048	0.046 U	7.7	0.046 U
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	32	8.6	5.3	0.0016		1.4	2.4	0.045 U	8.6	6.8	0.016	0.046 U	7.7	0.046 U
Benzo(g,h,i)perylene	191-24-2	--	13	4.0 U	2.0 U	0.010 U										
Fluoranthene	206-44-0	3,200	0.94	54	32	0.057										

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			SP2-B				SS-2B	SB-40			SB-41				SB-42	
Sample Name			SP2-B-15.0	SP2-B-30.0	SP2-B-35.0	SP2-B-45.0	SS-2B	SB-40-29.5-30	SB-40-31.5-32	SB-40-39-39.5	SB-41-24-25	SB-41-25.5-26	SB-41-28.5-29	SB-41-49-50	SB-42-25.5-26	SB-42-29-30
Sample Date			6/11/2010	6/11/2010	6/11/2010	6/11/2010	6/22/2010	10/1/2018	10/1/2018	10/1/2018	10/2/2018	10/2/2018	10/2/2018	10/2/2018	10/3/2018	10/3/2018
Sample Depth (feet)			15.0–15.0	30.0–30.0	35.0–35.0	45.0–45.0	1.0–1.0	29.5–30.0	31.5–32.0	39.0–39.5	24.0–25.0	25.5–26.0	28.5–29.0	49.0–50.0	25.5–26.0	29.0–30.0
Analyte	CAS No.	Screening Level <sup>(1)</sup>														
Semivolatile Organic Compounds (cont.)																
Fluorene	86-73-7	3,200	0.20 U	61	34	0.055										
Naphthalene	91-20-3	5.0 <sup>(2)</sup>	0.20 U <sup>(2)</sup>	470 <sup>(2)</sup>	160 <sup>(2)</sup>	0.13 <sup>(2)</sup>		88 J <sup>(2)</sup>	140 J <sup>(2)</sup>	0.067 UJ <sup>(2)</sup>	160 J <sup>(2)</sup>	190 J <sup>(2)</sup>	0.063 UJ <sup>(2)</sup>	8.9 J <sup>(2)</sup>	130 J <sup>(2)</sup>	0.15 JB <sup>(2)</sup>
Pentachlorophenol	87-86-5	2.5	3.0 U	3.0 U	3.0 U	0.30 U										
Phenanthrene	85-01-8	--	0.49	140	82	0.14										
Phenol	108-95-2	24,000														
Pyrene	129-00-0	2,400	5.2	43	26	0.045										
Tetrachlorophenols (total)	25167-83-3	--														
Total Naphthalenes	--	5.0														
Volatile Organic Compounds																
1,1,1-Trichloroethane	71-55-6	2						0.037 UJ	0.034 UJ	0.034 UJ	0.022 UJ	0.024 UJ	0.032 UJ	0.028 UJ	0.028 UJ	0.031 UJ
1,1-Dichloroethane	75-34-3	180						0.03 UJ	0.027 UJ	0.027 UJ	0.041 UJ	0.045 UJ	0.025 UJ	0.022 UJ	0.054 UJ	0.025 UJ
1,2,4-Trimethylbenzene	95-63-6	1.3						2.4 J	4 J	0.027 UJ	2.3 J	4.2 J	0.025 UJ	0.050 J	2.1 J	0.025 UJ
1,2-Dichlorobenzene	95-50-1	--														
1,3,5-Trimethylbenzene	108-67-8	1.3						0.96 JB	2 J	0.034 UJ	0.076 UJ	0.083 UJ	0.032 UJ	0.028 UJ	1.1 J	0.031 UJ
1,3-Dichlorobenzene	541-73-1	--														
1,4-Dichlorobenzene	106-46-7	--														
Benzene	71-43-2	0.030						0.03 UJ	0.027 UJ	0.027 UJ	0.074 UJ	0.081 UJ	0.025 UJ	0.022 UJ	0.097 UJ	0.025 UJ
Chlorobenzene	108-90-7	--														
Chloroform	67-66-3	32						0.03 UJ	0.027 UJ	0.027 UJ	0.05 UJ	0.055 UJ	0.025 UJ	0.022 UJ	0.065 UJ	0.025 UJ
Chloromethane	74-87-3	--						0.074 UJ	0.067 UJ	0.067 UJ	0.027 UJ	0.03 UJ	0.063 UJ	0.056 UJ	0.036 UJ	0.062 UJ
cis-1,2-Dichloroethene	156-59-2	160						0.03 UJ	0.027 UJ	0.027 UJ	0.037 UJ	0.041 UJ	0.025 UJ	0.022 UJ	0.049 UJ	0.025 UJ
Ethylbenzene	100-41-4	6.0						0.20 J	0.14 J	0.034 UJ	0.10 UJ	0.25 J	0.032 UJ	0.11 J	0.13 UJ	0.031 UJ
Isopropylbenzene	98-82-8	8,000						0.18 J	0.36 J	0.034 UJ	0.13 J	0.32 J	0.032 UJ	0.031 J	0.13 UJ	0.031 UJ
Methyl isobutyl ketone	108-10-1	6,400						0.37 UJ	0.34 UJ	0.34 UJ	0.35 UJ	0.38 UJ	0.32 UJ	0.28 UJ	0.46 UJ	0.31 UJ
n-Propylbenzene	103-65-1	8,000						0.15 J	0.35 J	0.034 UJ	0.094 UJ	0.10 UJ	0.032 UJ	0.035 J	0.12 UJ	0.031 UJ
Styrene	100-42-5	16,000						0.13 J	0.064 J	0.034 UJ	0.044 UJ	0.048 UJ	0.032 UJ	0.028 UJ	0.058 UJ	0.031 UJ
Toluene	108-88-3	7.0						0.03 UJ	0.027 UJ	0.027 UJ	0.023 UJ	0.025 UJ	0.028 J	0.026 J	0.21 J	0.025 UJ
Trichloroethene	79-01-6	0.030						0.03 UJ	0.027 UJ	0.027 UJ	0.023 UJ	0.025 UJ	0.025 UJ	0.022 UJ	0.03 UJ	0.025 UJ
Xylene (meta & para)	108-38-3/106-42-3	--						0.80 J	0.52 J	0.067 UJ	0.15 J	0.64 J	0.063 UJ	0.056 UJ	0.059 UJ	0.062 UJ
Xylene (ortho)	95-47-6	--						0.32 J	0.20 J	0.034 UJ	0.079 UJ	0.35 J	0.032 UJ	0.041 J	0.10 UJ	0.031 UJ
Xylene (total)	1330-20-7	9.0						1.1 J	0.71 J	0.067 UJ	0.15 J	0.99 J	0.063 UJ	0.041 J	0.10 UJ	0.062 UJ

Notes:

Blank cells are intentional.

All criteria and results are rounded to two significant figures.

-- Not available or not established.

**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

1 Soil screening levels for all compounds designated as chemicals of interest are presented in Table 5.5. Landau Associates made no modifications to the analytical tables taken from February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.

2 Where naphthalene was run by USEPA 8260 only, or methylnaphthalenes were not run by USEPA 8270, the naphthalene result is compared to the screening level for total naphthalenes.

3 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level.

Abbreviations:

CAS = Chemical Abstracts Service

cPAH = Carcinogenic polycyclic aromatic hydrocarbon

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act TEQ Toxic equivalent

USEPA = U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected and the concentration is estimated.

JB Concentration is estimated due to presence of blank contamination. U Analyte is not detected at the associated reporting limit.

UJ Analyte is not detected at the associated reporting limit, which is an estimate.

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			SB-43							MW-14			
Sample Name			SB-43-28.5-29	SB-43-31-31.5	SB-43-37.5-38	SB-143-37.5-38	SB-43-41-41.5	SB-43-47-47.5	SB-43-71-71.5	MW-14-20.5-21	MW-14-22-22.5	MW-14-27-28	MW-14-31-31.5
Sample Date			10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018
Sample Depth (feet)			28.5–29.0	31.0–31.5	37.5–38.0	37.5–38.0	41.0–41.5	47.0–47.5	71.0–71.5	20.5–21.0	22.0–22.5	27.0–28.0	31.0–31.5
Analyte	CAS No.	Screening Level <sup>(1)</sup>											
Metals													
Antimony	7440-36-0	32		0.18 U									
Arsenic	7440-38-2	20		1.4									
Beryllium	7440-41-7	160		0.18 U									
Cadmium	7440-43-9	2.0		0.18 U									
Chromium	7440-47-3	2,000		23									
Copper	7440-50-8	3,200		9.9									
Lead	7439-92-1	250		1.4									
Mercury	7439-97-6	2.0		0.29 U									
Nickel	7440-02-0	1,600		34									
Selenium	7782-49-2	400		0.83									
Silver	7440-22-4	400		0.092 U									
Thallium	7440-28-0	0.80		0.18 U									
Zinc	7440-66-6	24,000		25									
Total Petroleum Hydrocarbons													
Diesel	DRO	--											
Gasoline	GRO	--											
Semivolatile Organic Compounds													
1-Methylnaphthalene	90-12-0	--		160									
2,4,5-Trichlorophenol	95-95-4	8,000		0.11 U									
2,4,6-Trichlorophenol	88-06-2	80		0.11 U									
2,4-Dichlorophenol	120-83-2	240		0.11 U									
2,4-Dimethylphenol	105-67-9	1,600		0.19									
2,4-Dinitrophenol	51-28-5	160		0.56 UJ									
2-Chlorophenol	95-57-8	400		0.11 U									
2-Methylnaphthalene	91-57-6	--		290									
2-Methylphenol	95-48-7	4,000		0.12									
2-Nitrophenol	88-75-5	--		0.11 U									
4,6-Dinitro-o-cresol	534-52-1	6.4		0.21 U									
4-Chloro-3-methylphenol	59-50-7	8,000		0.21 U									
4-Methylphenol	106-44-5	8,000		0.11 U									
4-Nitrophenol	100-02-7	--		67									
Acenaphthene	83-32-9	4,800		140									
Acenaphthylene	208-96-8	--		7.7									
Anthracene	120-12-7	24,000		51									
Benzo(a)anthracene	56-55-3	--	5.5	26	2.4	2.2	0.040 U	0.048 U	0.047 U	14 J	0.046 U	0.060	0.040 U
Benzo(a)pyrene	50-32-8	0.10	2.8	12	0.97	1.1	0.040 U	0.048 U	0.047 U	5.9 J	0.046 U	0.043 U	0.040 U
Benzo(b)fluoranthene	205-99-2	--	2.2	11	0.92	0.97	0.040 U	0.048 U	0.047 U	4.3 J	0.046 U	0.043 U	0.040 U
Benzo(k)fluoranthene	207-08-9	--	2.5	9.7	0.70	0.67	0.040 U	0.048 U	0.047 U	4.0 J	0.046 U	0.043 U	0.040 U
Chrysene	218-01-9	--	5.5	25	2.3	2.2	0.040 U	0.048 U	0.047 U	14 J	0.046 U	0.062	0.040 U
Dibenzo(a,h)anthracene	53-70-3	--	0.46	2.4	0.21	0.2	0.040 U	0.048 U	0.047 U	0.71 J	0.046 U	0.043 U	0.040 U
Indeno(1,2,3-c,d)pyrene	193-39-5	--	0.84	3.2	0.40	0.35	0.040 U	0.048 U	0.047 U	1.5 J	0.046 U	0.043 U	0.040 U
cPAHs (MTCA TEQ-HalfND)	BaPEq (U=1/2)	0.10	4.0	17	1.5	1.5	0.040 U	0.048 U	0.047 U	8.4 J	0.046 U	0.036	0.040 U
cPAHs (MTCA TEQ-ZeroND)	BaPEq (U=0)	0.10	4.0	17	1.5	1.5	0.040 U	0.048 U	0.047 U	8.4 J	0.046 U	0.0066	0.040 U
Benzo(g,h,i)perylene	191-24-2	--		3.4									
Fluoranthene	206-44-0	3,200		110									

Table 5.3  
Soil Analytical Data 1992–2018 (mg/kg)

Location Name			SB-43							MW-14			
Sample Name			SB-43-28.5-29	SB-43-31-31.5	SB-43-37.5-38	SB-143-37.5-38	SB-43-41-41.5	SB-43-47-47.5	SB-43-71-71.5	MW-14-20.5-21	MW-14-22-22.5	MW-14-27-28	MW-14-31-31.5
Sample Date			10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/4/2018	10/5/2018	10/5/2018	10/5/2018	10/5/2018
Sample Depth (feet)			28.5–29.0	31.0–31.5	37.5–38.0	37.5–38.0	41.0–41.5	47.0–47.5	71.0–71.5	20.5–21.0	22.0–22.5	27.0–28.0	31.0–31.5
Analyte	CAS No.	Screening Level <sup>(1)</sup>											
Semivolatile Organic Compounds (cont.)													
Fluorene	86-73-7	3,200		110									
Naphthalene	91-20-3	5.0 <sup>(2)</sup>	540 <sup>(2)</sup>	890 <sup>(3)</sup>	78 <sup>(2)</sup>	52 <sup>(2)</sup>	0.048 UJ <sup>(2)</sup>	13 <sup>(2)</sup>	0.059 UJ <sup>(2)</sup>	170 <sup>(2)</sup>	0.19 <sup>(2)</sup>	0.54 <sup>(2)</sup>	1.8 <sup>(2)</sup>
Pentachlorophenol	87-86-5	2.5		0.23 J									
Phenanthrene	85-01-8	--		310									
Phenol	108-95-2	24,000		0.11 U									
Pyrene	129-00-0	2,400		97									
Tetrachlorophenols (total)	25167-83-3	--											
Total Naphthalenes	--	5.0		1,300									
Volatile Organic Compounds													
1,1,1-Trichloroethane	71-55-6	2	0.024 U	0.024 U	0.022 U	0.027 U	0.024 U	0.03 U	0.029 U	0.021 U	0.026 U	0.027 U	0.036 U
1,1-Dichloroethane	75-34-3	180	0.045 U	0.046 U	0.041 U	0.021 U	0.019 U	0.024 U	0.024 U	0.041 U	0.021 U	0.022 U	0.029 U
1,2,4-Trimethylbenzene	95-63-6	1.3	13	34	1.9	1.5	0.019 U	0.30	0.024 U	0.43	0.021 U	0.022 U	0.029 U
1,2-Dichlorobenzene	95-50-1	--											
1,3,5-Trimethylbenzene	108-67-8	1.3	0.083 U	13	0.076 U	0.57	0.024 U	0.11	0.029 U	0.075 U	0.026 U	0.027 U	0.036 U
1,3-Dichlorobenzene	541-73-1	--											
1,4-Dichlorobenzene	106-46-7	--											
Benzene	71-43-2	0.030	0.081 U	0.083 U	0.074 U	0.021 U	0.019 U	0.024 U	0.024 U	0.073 U	0.021 U	0.022 U	0.029 U
Chlorobenzene	108-90-7	--											
Chloroform	67-66-3	32	0.054 U	0.056 U	0.050 U	0.021 U	0.019 U	0.024 U	0.024 U	0.049 U	0.021 U	0.022 U	0.029 U
Chloromethane	74-87-3	--	0.030 U	0.031 U	0.027 U	0.053 U	0.048 U	0.059 U	0.059 U	0.027 U	0.052 U	0.054 U	0.071 U
cis-1,2-Dichloroethene	156-59-2	160	0.040 U	0.042 U	0.037 U	0.021 U	0.019 U	0.024 U	0.024 U	0.037 U	0.021 U	0.022 U	0.029 U
Ethylbenzene	100-41-4	6.0	2.9	13	0.53	0.44	0.024 U	0.46	0.029 U	0.10 U	0.026 U	0.027 U	0.036 U
Isopropylbenzene	98-82-8	8,000	1.2	3.3	0.19 J	0.13	0.024 U	0.059	0.029 U	0.096 U	0.026 U	0.027 U	0.036 U
Methyl isobutyl ketone	108-10-1	6,400	0.38 U	0.39 U	0.35 U	0.27 U	0.24 U	0.30 U	0.29 U	0.35 U	0.26 U	0.27 U	0.36 U
n-Propylbenzene	103-65-1	8,000	0.91	2.5	0.094 U	0.097	0.024 U	0.058	0.029 U	0.093 U	0.026 U	0.027 U	0.036 U
Styrene	100-42-5	16,000	2.4	11	0.12 J	0.027 U	0.024 U	0.030 U	0.029 U	0.043 U	0.026 U	0.027 U	0.036 U
Toluene	108-88-3	7.0	0.23 J	0.65	0.023 U	0.021 U	0.019 U	0.035	0.024 U	0.14 J	0.021 U	0.022 U	0.029 U
Trichloroethene	79-01-6	0.030	0.025 U	0.026 U	0.023 U	0.021 U	0.019 U	0.024 U	0.024 U	0.023 U	0.021 U	0.022 U	0.029 U
Xylene (meta & para)	108-38-3/106-42-3	--	13	42	0.89	0.72	0.048 U	0.16	0.059 U	0.044 U	0.052 U	0.054 U	0.071 U
Xylene (ortho)	95-47-6	--	5.1	18	0.45	0.35	0.024 U	0.14	0.029 U	0.078 U	0.026 U	0.027 U	0.036 U
Xylene (total)	1330-20-7	9.0	18	60	1.3	1.1	0.048 U	0.30	0.059 U	0.078 U	0.052 U	0.054 U	0.071 U

Notes:

Blank cells are intentional.

All criteria and results are rounded to two significant figures.

-- Not available or not established.

**BOLD** Detected result exceeds criteria.

The screening level is a proposed Site cleanup level.

1 Soil screening levels for all compounds designated as chemicals of interest are presented in Table 5.5. Landau Associates made no modifications to the analytical tables taken from the February 2022 Remedial Investigation and Feasibility Study apart from updating screening levels.

2 Where naphthalene was run by USEPA 8260 only, or methylnaphthalenes were not run by USEPA 8270, the naphthalene result is compared to the screening level for total naphthalenes.

3 Naphthalene was analyzed by both USEPA 8260 and 8270. The 8270 result was preferred and is shown here and the calculated total naphthalenes concentration is compared to the screening level.

Abbreviations:

CAS = Chemical Abstracts Service

cPAH = Carcinogenic polycyclic aromatic hydrocarbon

mg/kg = Milligrams per kilogram

MTCA = Model Toxics Control Act TEQ Toxic equivalent

USEPA = U.S. Environmental Protection Agency

Qualifiers:

J Analyte was detected and the concentration is estimated.

JB Concentration is estimated due to presence of blank contamination. U Analyte is not detected at the associated reporting limit.

UJ Analyte is not detected at the associated reporting limit, which is an estimate.